

=> FIL REG

FILE 'REGISTRY' ENTERED AT 06:50:52 ON 10 MAR 2011  
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=> D HIS NOFILE

FILE 'HCA' ENTERED AT 06:06:09 ON 10 MAR 2011

E US2007-594041/APPS

L1 1 SEA SPE=ON ABB=ON PLU=ON US2007-594041/AP

E JP2004-90320/APPS

L2 1 SEA SPE=ON ABB=ON PLU=ON JP2004-90320/PRN

E JP2004-90319/APPS

L3 1 SEA SPE=ON ABB=ON PLU=ON JP2004-90319/PRN

E WO2005-JP6209/APPS

L4 1 SEA SPE=ON ABB=ON PLU=ON (WO2005-JP6209/AP OR WO2005-JP6209/  
PRN)

L5 1 SEA SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4)  
SEL L5 RN

FILE 'REGISTRY' ENTERED AT 06:07:11 ON 10 MAR 2011

L6 8 SEA SPE=ON ABB=ON PLU=ON (24936-68-3/BI OR 498-66-8/BI OR

FILE 'HCA' ENTERED AT 06:07:21 ON 10 MAR 2011

SEL L5 AU

L7 184 SEA SPE=ON ABB=ON PLU=ON ("NAKAYAMA, HAJIME"/AU OR "SAITO,  
YUKITO"/AU)

L8 73201 SEA SPE=ON ABB=ON PLU=ON FUJI ?/CO

L9 6553 SEA SPE=ON ABB=ON PLU=ON FUJIFILM ?/CO

L10 78676 SEA SPE=ON ABB=ON PLU=ON (L8 OR L9)

FILE 'REGISTRY' ENTERED AT 06:07:51 ON 10 MAR 2011

ACT GUG041/A

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L11 ( 10297)SEA SPE=ON ABB=ON PLU=ON ?CELLULOSE?/CNS

L12 ( 6345)SEA SPE=ON ABB=ON PLU=ON L11 AND C H O/ELF

L13 ( 3734)SEA SPE=ON ABB=ON PLU=ON L12 NOT RSD/FA

L14 ( 627)SEA SPE=ON ABB=ON PLU=ON L13 AND 2/NC

L15 170 SEA SPE=ON ABB=ON PLU=ON L14 AND ?NOATE?/CNS

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E C7 H10/MF

L16 1 SEA SPE=ON ABB=ON PLU=ON "C7 H10"/MF AND L6

FILE 'HCA' ENTERED AT 06:09:08 ON 10 MAR 2011

L17 1811 SEA SPE=ON ABB=ON PLU=ON L15

L18 6087 SEA SPE=ON ABB=ON PLU=ON L16

L19 QUE SPE=ON ABB=ON PLU=ON (FILM? OR THINFILM? OR LAYER? OR  
OVERLAY? OR OVERLAID? OR LAMIN? OR LAMEL? OR SHEET? OR LEAF?  
OR FOIL? OR COAT? OR TOPCOAT? OR OVERCOAT? OR VENEER? OR  
SHEATH? OR COVER? OR ENVELOP? OR ENCAS? OR ENWRAP? OR OVERSPREA  
D? OR ENCAPS?)

L20 QUE SPE=ON ABB=ON PLU=ON TRANSLUC? OR TRANSPAR? OR CLEAR?

L21 249959 SEA SPE=ON ABB=ON PLU=ON L19 AND L20

L22 7895 SEA SPE=ON ABB=ON PLU=ON (L17 OR L18)

L23 296 SEA SPE=ON ABB=ON PLU=ON L21 AND L22

FILE 'REGISTRY' ENTERED AT 06:11:18 ON 10 MAR 2011

L24 6 SEA SPE=ON ABB=ON PLU=ON L6 NOT (L15 OR L16)

FILE 'HCA' ENTERED AT 06:12:52 ON 10 MAR 2011  
L25 TRA PLU=ON L23 1- RN : 3127 TERMS

FILE 'REGISTRY' ENTERED AT 06:13:03 ON 10 MAR 2011  
L26 3127 SEA SPE=ON ABB=ON PLU=ON L25  
L27 152 SEA SPE=ON ABB=ON PLU=ON L26 AND P/ELS  
L28 65 SEA SPE=ON ABB=ON PLU=ON L27 AND O>2  
L29 43 SEA SPE=ON ABB=ON PLU=ON L28 AND O>3  
L30 367 SEA SPE=ON ABB=ON PLU=ON L26 AND S/ELS  
L31 196 SEA SPE=ON ABB=ON PLU=ON L30 AND O>1  
L32 945585 SEA SPE=ON ABB=ON PLU=ON ?SULFONAMIDE?/CNS  
L33 3605726 SEA SPE=ON ABB=ON PLU=ON ?SULFONYL?/CNS  
L34 57 SEA SPE=ON ABB=ON PLU=ON L31 AND (L32 OR L33)  
L35 313 SEA SPE=ON ABB=ON PLU=ON L26 AND NRS>2

FILE 'HCA' ENTERED AT 06:24:40 ON 10 MAR 2011  
L36 177165 SEA SPE=ON ABB=ON PLU=ON RETARD?  
L37 60 SEA SPE=ON ABB=ON PLU=ON L23 AND L36  
L38 60 SEA SPE=ON ABB=ON PLU=ON L37 AND L26  
L39 TRA PLU=ON L38 1- RN : 285 TERMS

FILE 'REGISTRY' ENTERED AT 06:29:36 ON 10 MAR 2011  
L40 285 SEA SPE=ON ABB=ON PLU=ON L39

FILE 'HCA' ENTERED AT 06:29:54 ON 10 MAR 2011  
L41 TRA PLU=ON L38 1- RN HIT : 285 TERMS

FILE 'REGISTRY' ENTERED AT 06:29:56 ON 10 MAR 2011  
L42 285 SEA SPE=ON ABB=ON PLU=ON L41

FILE 'HCA' ENTERED AT 06:42:02 ON 10 MAR 2011  
L43 17 SEA SPE=ON ABB=ON PLU=ON L38 AND (L7 OR L10)  
L44 43 SEA SPE=ON ABB=ON PLU=ON L38 NOT L43  
L45 34 SEA SPE=ON ABB=ON PLU=ON 1802-2006/PY,PRY,AY AND L44

=> FIL HCA

FILE 'HCA' ENTERED AT 06:50:59 ON 10 MAR 2011  
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=> D L43 1-17 IBIB ABS HITSTR HITIND RETABLE

L43 ANSWER 1 OF 17 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 152:466286 HCA Full-text  
TITLE: In-plane switching (IPS)-mode liquid crystal displays  
having flat part-rich antiglare films  
INVENTOR(S): Fukuda, Kenichi; Suzuki, Takato; Inoue, Katsuki  
PATENT ASSIGNEE(S): FujiFilm Corporation, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 63pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2010085504	A	20100415	JP 2008-251930	20080929

PRIORITY APPLN. INFO.: JP 2008-251930 20080929

AB Title liquid crystal displays (LCD) has antiglare films showing center line average roughness (Ra) 0.03-0.4  $\mu\text{m}$ , average gaps between projections and depressions 80-700  $\mu\text{m}$ , and region content of 0-0.5° tilt angle of the projections and depressions 40-98%. The antiglare films contain translucent particles, whose average particle diameter is 0.01-4.0  $\mu\text{m}$  larger than the thickness of the antiglare films. Preferably, the LCDs have optical retardation areas (e.g. cellulose esters or liquid-crystalline polymers) satisfying (A)  $100 \leq \text{Re} \leq 400 \text{ nm}$  and  $-50 \leq \text{Rth} \leq +50 \text{ nm}$ , (B)  $60 \leq \text{Re} \leq 200 \text{ nm}$  and  $30 \leq \text{Rth} \leq 100 \text{ nm}$ , (C)  $0 \leq \text{Re} \leq 20 \text{ nm}$  and  $-400 \leq \text{Rth} \leq -50 \text{ nm}$ , or (D)  $30 \leq \text{Re} \leq 150 \text{ nm}$  and  $100 \leq \text{Rth} \leq 400 \text{ nm}$  (Re and Rth = in-plane and thickness retardation, resp.) and/or protective layers (e.g. cellulose acylates, norbornene polymers, and acrylic polymers) between polarizing layers and substrates. The antiglare films suppress external light reception and light leakage.

IT 542-92-7DP, 1,3-Cyclopentadiene, polymers with olefins (Zeonor, optical retardation film; in-plane switching (IPS)-mode liquid crystal displays having flat part-rich antiglare films)

RN 542-92-7 HCA

CN 1,3-Cyclopentadiene (CA INDEX NAME)



IT 663626-57-1P  
(liquid crystal, optical retardation film; in-plane switching (IPS)-mode liquid crystal displays having flat part-rich antiglare films)

RN 663626-57-1 HCA

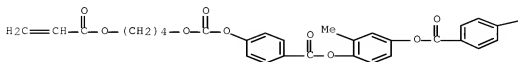
CN Benzoic acid, 4-[[[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]carbonyl]oxy]-, 1,1'-(2-methyl-1,4-phenylene) ester, homopolymer (CA INDEX NAME)

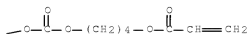
CM 1

CRN 187585-64-4

CMF C37 H36 O14

PAGE 1-A

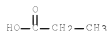




IT 159250-85-8, Elmech  
(optical compensation film; in-plane switching (IPS)-mode  
liquid crystal displays having flat part-rich antiglare films)  
RN 159250-85-8 HCA  
CN Elmech (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IT 9004-35-7DP, saponified 9004-39-IDP, KA, saponified  
(optical retardation film; in-plane switching  
(IPS)-mode liquid crystal displays having flat part-rich antiglare  
films)  
RN 9004-35-7 HCA  
CN Cellulose, acetate (CA INDEX NAME)  
  
CM 1  
  
CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
  
CM 2  
  
CRN 64-19-7  
CMF C2 H4 O2



RN 9004-39-1 HCA  
CN Cellulose, acetate propanoate (CA INDEX NAME)  
  
CM 1  
  
CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
  
CM 2  
  
CRN 79-09-4  
CMF C3 H6 O2



CM 3

CRN 64-19-7

CMF C2 H4 O2



IT 9011-14-7, PMMA 194739-44-1, Chemisnow MX 1000  
(particles, antiglare layer containing; in-plane switching  
(IPS)-mode liquid crystal displays having flat part-rich antiglare  
films)

RN 9011-14-7 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 80-62-6

CMF C5 H8 O2



RN 194739-44-1 HCA

CN Chemisnow MX 1000 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 498-66-8D, Norbornene, polymers 9012-09-3D, Fujitac TD  
80UF, saponified

(protective layer; in-plane switching (IPS)-mode liquid crystal  
displays having flat part-rich antiglare films)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
CMF C2 H4 O2



- IPCI G02F0001-1335 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]; G02B0005-02 [I,A]; G02B0001-11 [I,A]; G02B0001-10 [I,A]; G02B0005-30 [I,A]
- IPCR G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G02B0001-10 [I,C]; G02B0001-10 [I,A]; G02B0001-11 [I,A]; G02B0005-02 [I,C]; G02B0005-02 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13363 [I,A]
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST in plane switching liq crystal display; IPS LCD antiglare film  
PMMA particle; optical retardation film liq cryst  
cellulose; protection layer cellulose triacetate IPS LCD
- IT Antireflective films  
(IPS-mode LCDs having antiglare films and optical  
retardation films)
- IT Polyesters  
(acrylic-polycarbonate-, optical retardation films;  
in-plane switching (IPS)-mode liquid crystal displays having flat  
part-rich antiglare films)
- IT Polycarbonates  
(acrylic-polyester-, optical retardation films;  
in-plane switching (IPS)-mode liquid crystal displays having flat  
part-rich antiglare films)
- IT Liquid crystal displays  
(in-plane switching (IPS)-mode liquid crystal displays having flat  
part-rich antiglare films)
- IT Polycarbonates  
(optical compensation films; in-plane switching (IPS)-mode  
liquid crystal displays having flat part-rich antiglare films)
- IT Liquid crystals, polymeric  
(optical retardation films; in-plane switching  
(IPS)-mode liquid crystal displays having flat part-rich antiglare  
films)
- IT Acrylic polymers  
(protective layers; in-plane switching (IPS)-mode liquid  
crystal displays having flat part-rich antiglare films)
- IT Optical instruments  
(retarders; in-plane switching (IPS)-mode liquid crystal  
displays having flat part-rich antiglare films)
- IT 542-92-7DP, 1,3-Cyclopentadiene, polymers with olefins  
(Zeonor, optical retardation film; in-plane  
switching (IPS)-mode liquid crystal displays having flat part-rich  
antiglare films)
- IT 663626-57-1P  
(liquid crystal, optical retardation film; in-plane  
switching (IPS)-mode liquid crystal displays having flat part-rich  
antiglare films)
- IT 159250-85-8, Elmech  
(optical compensation film; in-plane switching (IPS)-mode  
liquid crystal displays having flat part-rich antiglare films)
- IT 9004-35-7DP, saponified 9004-39-1DP, KA, saponified  
(optical retardation film; in-plane switching

(IPS)-mode liquid crystal displays having flat part-rich antiglare films)

IT 9011-14-7, PMMA 194739-44-1, Chemisnow MX 1000  
(particles, antiglare layer containing; in-plane switching  
(IPS)-mode liquid crystal displays having flat part-rich antiglare films)

IT 498-66-8D, Norbornene, polymers 9012-09-3D, Fujitac TD  
80UF, saponified  
(protective layer; in-plane switching (IPS)-mode liquid crystal displays having flat part-rich antiglare films)

L43 ANSWER 2 OF 17 HCA COPYRIGHT 2011 ACS ON STN

ACCESSION NUMBER: 152:203350 HCA ~~Full-text~~

TITLE: Optical polymer film, polarizing plate,  
liquid crystal display, and fabrication of this  
cellulose acrylate based film

INVENTOR(S): Toyama, Hirofumi; Yasuda, Kotaro; Ino, Yusuke; Yanai,  
Yujiro; Sasada, Yasuyuki; Takeda, Jun

PATENT ASSIGNEE(S): Fujifilm Corporation, Japan

SOURCE: U.S. Pat. Appl. Publ., 49pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 20100020273	A1	20100128	US 2009-507944	20090723
JP 2010026424	A	20100204	JP 2008-190713	20080724
PRIORITY APPLN. INFO.:			JP 2008-190713	A 20080724

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

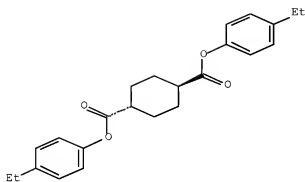
AB This invention relates to a polymer film used a component of liquid crystal display device and optical film for polarizing plate. In this optical film for liquid crystal display devices, wavelength dispersion characteristics of retardation and reversed wavelength dispersion problems typical of these displays are solved. A polymer film stretched after formed by solution casting, of which the wavelength dispersion of the refractivity anisotropy and/or the refractivity anisotropy differ between two surfaces of the film is disclosed. A novelty of this film is to provide optically-compensatory film, and to provide a polarizing plate for liquid crystal display. Another novelty of this film is difference in the wavelength dispersion characteristics of refractivity anisotropy between the two surfaces of the film is utilized for optical compensation. The film has gradation of wavelength dispersion characteristics of refractivity anisotropy along the thickness.

IT 76025-57-5 628725-21-3  
(optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film )

RN 76025-57-5 HCA

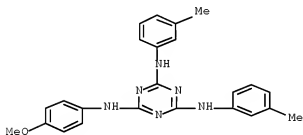
CN 1,4-Cyclohexanedicarboxylic acid, 1,4-bis(4-ethylphenyl) ester, trans-  
(CA INDEX NAME)

Relative stereochemistry.



RN 628725-21-3 HCA

CN 1,3,5-Triazine-2,4,6-triamine, N2-(4-methoxyphenyl)-N4,N6-bis(3-methylphenyl)- (CA INDEX NAME)

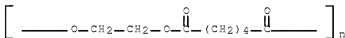


IT 24937-05-1 24938-37-2

(plasticizer with cellulose acrylate; optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film)

RN 24937-05-1 HCA

CN Poly[oxy-1,2-ethanediyl oxy(1,6-dioxo-1,6-hexanediyl)] (CA INDEX NAME)



RN 24938-37-2 HCA

CN Hexanedioic acid, polymer with 1,2-ethanediol (CA INDEX NAME)

CM 1

CRN 124-04-9

CMF C6 H10 O4

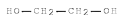




CM 2

CRN 107-21-1

CMF C2 H6 O2



IT 9085-05-6P, Cellulose acrylate  
(polymer film, polarizing plate, and liquid crystal display)

RN 9085-05-6 HCA

CN Cellulose, 2-propenoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

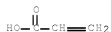
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-10-7

CMF C3 H4 O2



IT 115-86-6, Triphenyl phosphate 838-85-7, Diphenyl  
phosphate

(polymer film, polarizing plate, and liquid crystal display)

RN 115-86-6 HCA

CN Phosphoric acid, triphenyl ester (CA INDEX NAME)



RN 838-85-7 HCA

CN Phosphoric acid, diphenyl ester (CA INDEX NAME)



INCL 349096000; 359500000  
IPCI G02F0001-1335 [I,A]; G02B0001-08 [I,A]  
IPCR G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G02B0001-08 [I,C]; G02B0001-08 [I,A]  
NCL 349/096.000; 359/500.000  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST polymer film polarizing plate liq crystal display  
IT Refractive index  
(anisotropy; polymer film, polarizing plate, and liquid crystal display)  
IT Polymers  
(film; polymer film, polarizing plate, and liquid crystal display)  
IT Optical properties  
Plasticizers  
(optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film)  
IT Transparent films  
(optical polymer film, polarizing plate, and liquid crystal display, and fabrication of transparent film comprising cellulose acetate)  
IT Polyesters  
(plasticizer with cellulose acrylate; optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film)  
IT Polarizing films  
(plate; polymer film, polarizing plate, and liquid crystal display)  
IT Liquid crystal displays  
Optical films  
(polymer film, polarizing plate, and liquid crystal display)  
IT Anisotropy  
(refractive; polymer film, polarizing plate, and liquid crystal display)  
IT Optical dispersion  
(wavelength; polymer film, polarizing plate, and liquid crystal display)  
IT 76025-57-3 626725-21-3  
(optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film)  
IT 24937-05-1 24938-37-2  
(plasticizer with cellulose acrylate; optical polymer film, polarizing plate, and liquid crystal display, and fabrication of this cellulose acrylate based film)  
IT 9085-05-6P, Cellulose acrylate  
(polymer film, polarizing plate, and liquid crystal display)  
IT 115-86-6, Triphenyl phosphate 838-85-7, Diphenyl phosphate  
(polymer film, polarizing plate, and liquid crystal display)

L43 ANSWER 3 OF 17 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER:

151:471625 HCA Full-text

TITLE:

Transparent laminated  
films and polarizers using the films  
as protective films

March 10, 2011

10/594,041

11

INVENTOR(S): Takeda, Atsushi; Ono, Kazuhiro  
 PATENT ASSIGNEE(S): Fujifilm Corporation, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 66pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2009241558	A	20091022	JP 2008-94246	20080331
PRIORITY APPLN. INFO.:			JP 2008-94246	20080331

AB The transparent laminated films, prepared by co-casting, comprise  $\geq 3$  multilayer films with haze  $\leq 5\%$  including cellulose ester layers and cycloolefin polymer outermost layers. Thus, a co-extruded 3-layer film including a cellulose triacetate middle layer and norbornenecarboxylic acid Me ester homopolymer outer layers showed haze 0.6% and retardation (590 nm) in the plane direction (Re) and thickness direction (Rth) 2 and 185m, resp.

IT 9004-36-8, Cellulose acetate butyrate 9004-39-1, Cellulose acetate propionate 9012-09-3 9035-69-2, L 70 (middle layer; transparent laminated films for protective films of polarizers)

RN 9004-36-8 HCA

CN Cellulose, acetate butanoate (CA INDEX NAME)

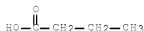
CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 107-92-6  
 CMF C4 H8 O2



CM 3

CRN 64-19-7  
 CMF C2 H4 O2



RN 9004-39-1 HCA  
 CN Cellulose, acetate propanoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4

CMF C3 H6 O2



CM 3

CRN 64-19-7

CMF C2 H4 O2



RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



RN 9035-69-2 HCA

CN Cellulose, diacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



IT 26935-77-3P, Butylnorbornene polymer 27176-60-9P,  
Norbornenecarboxylic acid methyl ester homopolymer 860471-36-9P,  
5-Acetoxynorbornene-5-butylnorbornene-Methyl 5-norbornene-2-carboxylate  
copolymer  
(outer layer; transparent laminated  
films for protective films of polarizers)

RN 26935-77-3 HCA

CN Bicyclo[2.2.1]hept-2-ene, 5-butyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 22094-81-1

CMF C11 H18



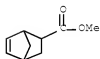
RN 27176-60-9 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 6203-08-3

CMF C9 H12 O2



RN 860471-36-9 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with  
bicyclo[2.2.1]hept-5-en-2-yl acetate and 5-butylbicyclo[2.2.1]hept-2-ene  
(CA INDEX NAME)

CM 1

CRN 22094-81-1

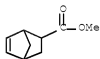
CMF C11 H18



CM 2

CRN 6203-08-3

CMF C9 H12 O2



CM 3

CRN 6143-29-9

CMF C9 H12 O2



IT 498-66-8D, Norbornene, derivs., polymers 295785-91-0,  
Zeonor 1600 532436-61-6, Arton F 5023 833481-30-4,  
Appears 3000

(outer layer; transparent laminated  
films for protective films of polarizers)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 295785-91-0 HCA

CN Zeonor 1600 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 532436-61-6 HCA

CN Arton F 5023 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 833481-30-4 HCA

March 10, 2011

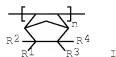
10/594,041

15

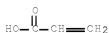
CN Appear 3000 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI B32B0023-08 [I,A]; B32B0023-20 [I,A]; B32B0023-00 [I,C\*]; G02B0005-30 [I,A]  
 IPCR B32B0023-00 [I,C]; B32B0023-08 [I,A]; B32B0023-20 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73  
 ST transparent laminate film polarizer  
 protective; norbornenecarboxylate methyl polymer cellulose acetate  
 film transparent  
 IT Cycloalkenes  
 (polymers; transparent laminated films  
 for protective films of polarizers)  
 IT Laminated plastic films  
 Optical films  
 Polarizers  
 Transparent films  
 (transparent laminated films for  
 protective films of polarizers)  
 IT 9004-36-8, Cellulose acetate butyrate 9004-39-1,  
 Cellulose acetate propionate 9012-09-3 9035-69-2, L 70  
 (middle layer; transparent laminated  
 films for protective films of polarizers)  
 IT 26935-77-3P, Butylnorbornene polymer 27176-60-9P,  
 Norbornenecarboxylic acid methyl ester homopolymer 860471-36-9P,  
 5-Acetoxynorbornene-5-butylnorbornene-Methyl 5-norbornene-2-carboxylate  
 copolymer  
 (outer layer; transparent laminated  
 films for protective films of polarizers)  
 IT 498-66-8D, Norbornene, derivs., polymers 295785-91-0,  
 Zeonor 1600 532436-61-6, Arton F 5023 833481-30-4,  
 Appear 3000  
 (outer layer; transparent laminated  
 films for protective films of polarizers)

L43 ANSWER 4 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 151:471229 HCA Full-text  
 TITLE: Norbornene-based resin compositions for optical  
 films with good transparency and  
 thickness retardation controllability  
 INVENTOR(S): Watanabe, Saisuke; Yoshizawa, Masataka; Nagata, Ichiro  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Repub. Korean Kongkae Taeho Kongbo, 26pp.  
 CODEN: KRXXA7  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Korean  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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KR 2009101846	A	20090929	KR 2009-24415	20090323
JP 2009227868	A	20091008	JP 2008-76731	20080324
PRIORITY APPLN. INFO.:			JP 2008-76731	A 20080324
GI				



- AB Title resin comps. comprise (A) norbornene-based polymers having repeating units I and (B) hydroxy-containing vinyl polymers, wherein R1, R2, R3, R4 = H, or functional group selected from (CH2)m OC(O)R'', (CH2)mOH, (CH2)mC(O)OH, (CH2)mC(O)OR'', (CH2)mOR'', (CH2)mOC(O)OR'', (CH2)mC(O)R'', and (CH2)m O(CH2)m OH; R'' = C1-10 alkyl (R1, R2, R3, and R4 can form anhydride or dicarboxyimide and ≥1 of R1, R2, R3, and R4 = functional group); and m = 0-10. Thus, dicyclopentadiene and allyl acetate were reacted to give acetoethylnorbornene, which was polymerized to give a homopolymer with Mw 308,200, 90 parts of which was mixed with 10 parts a vinyl polymer in 320 parts a solvent mixture, and the resulting composition was cast into a film, showing haze 0.1% and retardation 163 nm in the thickness direction.
- IT 79-10-7D, Acrylic acid, hydroxyalkyl esters, polymers  
79-41-4D, Methacrylic acid, hydroxyalkyl esters, polymers  
(blend with norbornene-based polymers; norbornene-based resin comps. for optical films with good transparency and thickness retardation controllability)
- RN 79-10-7 HCA
- CN 2-Propenoic acid (CA INDEX NAME)

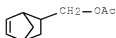


- RN 79-41-4 HCA
- CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



- IT 26935-85-3P 27176-60-9P 1030603-51-0P  
(blend with vinyl polymer; norbornene-based resin comps. for optical films with good transparency and thickness retardation controllability)
- RN 26935-85-3 HCA
- CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, homopolymer (CA INDEX NAME)
- CM 1
- CRN 10471-24-6
- CMF C10 H14 O2





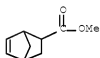
RN 27176-60-9 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 6203-08-3

CMF C9 H12 O2



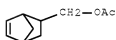
RN 1030603-51-0 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with bicyclo[2.2.1]hept-5-en-2-ylmethyl acetate (CA INDEX NAME)

CM 1

CRN 10471-24-6

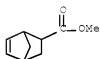
CMF C10 H14 O2



CM 2

CRN 6203-08-3

CMF C9 H12 O2

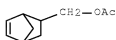


IT 10471-24-6P

(monomer; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)

RN 10471-24-6 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate (CA INDEX NAME)



IT 498-66-9DP, Norbornene, derivs., polymers  
(norbornene-based resin compns. for optical films with good  
transparency and thickness retardation  
controllability)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 77-73-6, Dicyclopentadiene 591-87-7, Allyl acetate  
(reactant for monomer preparation; norbornene-based resin compns. for  
optical films with good transparency and thickness  
retardation controllability)

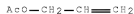
RN 77-73-6 HCA

CN 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- (CA INDEX NAME)



RN 591-87-7 HCA

CN Acetic acid, 2-propen-1-yl ester (CA INDEX NAME)



IPCI C08L0045-00 [I,A]; C08L0033-14 [I,A]; C08L0033-00 [I,C\*]; C08J0005-18 [I,A]

IPCR C08L0045-00 [I,C]; C08L0045-00 [I,A]; C08J0005-18 [I,C]; C08J0005-18 [I,A]; C08L0033-00 [I,C]; C08L0033-14 [I,A]

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 74

ST norbornene resin compn optical film transparency  
thickness retardation controllability; dicyclopentadiene allyl  
acetate reactant; acetoethylnorbornene homopolymer vinyl polymer  
film

IT Polymer blends  
(norbornene-based polymer-vinyl polymer blends; norbornene-based resin  
compns. for optical films with good transparency)

- and thickness retardation controllability)
- IT Optical films  
(norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT Vinyl compounds  
(polymers, blend with norbornene-based polymers; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT 79-10-7D, Acrylic acid, hydroxyalkyl esters, polymers  
79-41-4D, Methacrylic acid, hydroxyalkyl esters, polymers  
(blend with norbornene-based polymers; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT 26935-85-3P 27176-60-9P 1030603-51-0P  
(blend with vinyl polymer; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT 10471-24-6P  
(monomer; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT 498-66-8DP, Norbornene, derivs., polymers  
(norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)
- IT 77-73-6, Dicyclopentadiene 591-87-7, Allyl acetate  
(reactant for monomer preparation; norbornene-based resin compns. for optical films with good transparency and thickness retardation controllability)

L43 ANSWER 5 OF 17 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 151:450040 HCA Full-text

TITLE: Transparent laminated  
films and polarizers using the films  
as protective films

INVENTOR(S): Takeda, Atsushi; Ono, Kazuhiro

PATENT ASSIGNEE(S): Fujifilm Corporation, Japan

SOURCE: Jpn. Kokai Tokyo Koho, 63pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2009241557	A	20091022	JP 2008-94234	20080331
PRIORITY APPLN. INFO.:				JP 2008-94234	20080331
AB	The transparent laminated films, prepared by co-casting, comprise ≥2 multilayer films with haze ≤5% including cellulose ester outermost layers and cycloolefin polymer layers. Thus, a co-extruded 3-layer film including a norbornenecarboxylic acid Me ester polymer middle layer and cellulose triacetate outer layers showed haze 0.8% and retardation (590 nm) in the plane direction (Re) and thickness direction (Rth) 1 and 90 nm, resp.				
IT	27176-60-9P, Norbornenecarboxylic acid methyl ester homopolymer (middle layer; transparent laminated films for protective films of polarizers)				
RN	27176-60-9 HCA				
CN	Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, homopolymer (CA				

INDEX NAME)

CM 1

CRN 6203-08-3

CMF C9 H12 O2



IT 833481-30-4, Appear 3000  
(middle layer; transparent laminated  
films for protective films of polarizers)

RN 833481-30-4 HCA

CN Appear 3000 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 9004-36-8P, Cellulose acetate butyrate 9004-39-1P,  
Cellulose acetate propionate 9012-09-3P  
(outer layer; transparent laminated  
films for protective films of polarizers)

RN 9004-36-8 HCA

CN Cellulose, acetate butanoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

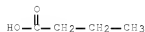
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 107-92-6

CMF C4 H8 O2



CM 3

CRN 64-19-7

CMF C2 H4 O2



RN 9004-39-1 HCA

CN Cellulose, acetate propanoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

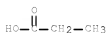
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4

CMF C3 H6 O2



CM 3

CRN 64-19-7

CMF C2 H4 O2



RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



IT 498-66-8D, Norbornene, derivs., polymers  
(transparent laminated films for  
protective films of polarizers)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IPCI B32B0023-08 [I,A]; B32B0023-00 [I,C\*]; B32B0027-00 [I,A]; G02B0005-30 [I,A]  
 IPCR B32B0023-00 [I,C]; B32B0023-08 [I,A]; B32B0027-00 [I,C]; B32B0027-00 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73  
 ST transparent laminate film polarizer  
 protective; norbornenecarboxylate methyl polymer cellulose acetate film transparent  
 IT Cycloalkenes  
 (polymers; transparent laminated films for protective films of polarizers)  
 IT laminated plastic films  
 Optical films  
 Polarizers  
 Transparent films  
 (transparent laminated films for protective films of polarizers)  
 IT 27176-60-9F, Norbornenecarboxylic acid methyl ester homopolymer  
 (middle layer; transparent laminated films for protective films of polarizers)  
 IT 833481-30-4, Appear 3000  
 (middle layer; transparent laminated films for protective films of polarizers)  
 IT 9004-36-8F, Cellulose acetate butyrate 9004-39-1F, Cellulose acetate propionate 9012-09-3F  
 (outer layer; transparent laminated films for protective films of polarizers)  
 IT 498-66-8D, Norbornene, derivs., polymers  
 (transparent laminated films for protective films of polarizers)

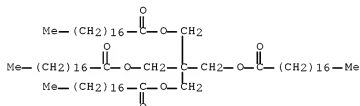
L43 ANSWER 6 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 151:404885 HCA Full-text  
 TITLE: Cycloolefin resin films and manufacture thereof  
 INVENTOR(S): Fujita, Akihide  
 PATENT ASSIGNEE(S): Fujifilm Corporation, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 41pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2009227932	A	20091008	JP 2008-78332	20080325
KR 2009102650	A	20090930	KR 2009-23187	20090318
PRIORITY APPLN. INFO.:			JP 2008-78332	A 20080325

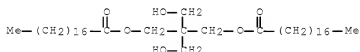
- AB The cycloolefin resin films, nos. of  $\geq 0.7$ -circularity gels with equivalent circle diameter 0.5-3 and  $\geq 10 \mu\text{m}$  are 50-2000 and  $<10/\text{mm}^2$ , resp. In manufacturing of the films, pellets containing cycloolefin resins preheated to  $T_g$  to  $T_g + 40^\circ$  ( $T_g$  = glass transition temperature of the pellets) are mixed with 0.01-3.0 weight% lubricants, having m.p.  $\leq T_g$  or being liquid at  $<T_g$ , and 0.01-0.5 weight% heat stabilizers and plasticized in an atmospheric of  $O_2$  concentration 0.1-10%. Gel-caused optical property loss is suppressed. The films have good handleability without using antislipping agents and are useful for optical films (e.g., retarders) in LCD. Thus, a cycloolefin resin (TOPAS 6013) was mixed with pentaerythritol tetrastearate (Unister H 476), pentaerythritol distearate (Unister H 476D), and a radical trap (Irganox 1010) as above and extruded to give a film with good transparency.
- IT 7782-44-7, Oxygen, uses  
(in atmosphere; manufacture of cycloolefin resin films with controlled gel concns.)
- RN 7782-44-7 HCA
- CN Oxygen (CA INDEX NAME)



- IT 115-83-3, Unister H 476 13081-97-5, Unister H 476D  
(lubricants; manufacture of cycloolefin resin films with controlled gel concns.)
- RN 115-83-3 HCA
- CN Octadecanoic acid, 1,1'-[2,2-bis[[1-(oxooctadecyl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



- RN 13081-97-5 HCA
- CN Octadecanoic acid, 1,1'-[2,2-bis(hydroxymethyl)-1,3-propanediyl] ester (CA INDEX NAME)



- IT 498-66-8D, Norbornene, polymers 26007-43-2, TOPAS 6013  
(manufacture of cycloolefin resin films with controlled gel concns.)
- RN 498-66-8 HCA
- CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 26007-43-2 HCA  
CN Bicyclo[2.2.1]hept-2-ene, polymer with ethene (CA INDEX NAME)  
CM 1  
CRN 498-66-8  
CMF C7 H10



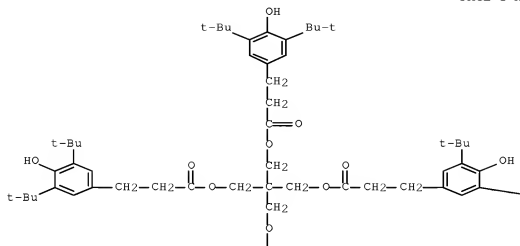
CM 2  
CRN 74-85-1  
CMF C2 H4



IT 6683-19-8, Irganox 1010  
(radical-trapping heat stabilizers; manufacture of cycloolefin resin  
films with controlled gel concns.)  
RN 6683-19-8 HCA  
CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,  
1,1'-[2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-  
oxopropoxy)methyl]-1,3-propanediyl] ester (CA INDEX NAME)



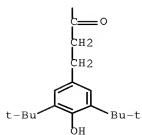
PAGE 1-A



PAGE 1-B

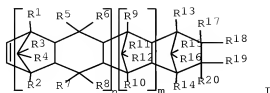
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PAGE 2-A



IPCI C08J0005-18 [I,A]; C08J0003-20 [I,A]; B29C0047-88 [N,A]  
 IPCR C08J0005-18 [I,C]; C08J0005-18 [I,A]; B29C0047-88 [N,C]; B29C0047-88 [N,A]; B29K0045-00 [N,A]; B29L0007-00 [N,A]; C08J0003-20 [I,C]; C08J0003-20 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73, 74  
 ST cycloolefin polymer film controlled gel concn  
 transparency handleability; norbornene polymer film gel  
 circularity diam transparency handleability; extrusion  
 cycloolefin polymer lubricant heat stabilizer transparent  
 film; LCD optical film cycloolefin polymer film  
 handleability  
 IT Extrusion of plastics and rubbers  
 Heat stabilizers  
 Lubricants  
 Plastic films  
 (manufacture of cycloolefin resin films with controlled gel  
 concns.)  
 IT Liquid crystal displays  
 Optical films  
 (manufacture of cycloolefin resin films with controlled gel  
 concns. useful for LCD optical films)  
 IT Cycloalkenes  
 (polymers; manufacture of cycloolefin resin films with controlled  
 gel concns.)  
 IT 7782-44-7, Oxygen, uses  
 (in atmosphere; manufacture of cycloolefin resin films with  
 controlled gel concns.)  
 IT 115-83-3, Unister H 476 13081-97-5, Unister H 476D  
 (lubricants; manufacture of cycloolefin resin films with  
 controlled gel concns.)  
 IT 498-66-8D, Norbornene, polymers 26007-43-2, TOPAS 6013  
 (manufacture of cycloolefin resin films with controlled gel  
 concns.)  
 IT 6683-19-8, Irganox 1010  
 (radical-trapping heat stabilizers; manufacture of cycloolefin resin  
 films with controlled gel concns.)  
 L43 ANSWER 7 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 150:400036 HCA Full-text  
 TITLE: Cyclic olefin polymer compositions with good  
 transparency and mechanical strength,  
 films comprising them, and retardation  
 films containing them  
 INVENTOR(S): Sakurai, Seiya; Kamata, Toshihiro; Nozoe, Hiroshi;  
 Takeuchi, Kiyoshi  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 39pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2009079081	A	20090416	JP 2007-247518	20070925
PRIORITY APPLN. INFO.:			JP 2007-247518	20070925
GI				



- AB The comps. contain (A) C2-30  $\alpha$ -olefin-I ( $n = 0, 1$ ;  $m = 0$ , pos. integer;  $p = 0, 1$ ;  $R1-20 = H$ , halo, hydrocarbon) copolymers with content of constitutional units derived from I (as above) 70-95%, (B) C2-30  $\alpha$ -olefin-I (as above) copolymers with content of constitutional units derived from I (as above) 30-70% ( $<70$ ), and (C) C2-30  $\alpha$ -olefin-I (as above) copolymers with content of constitutional units derived from I (as above)  $<30\%$ . Thus, a composition comprising ethylene-norbornene copolymer (II; ethylene/norbornene weight ratio 22/78) prepared in the presence of [ $\eta 3:\eta 1$ -tert-butyl(fluorenyldimethylsilyl)amido]dimethyltitanium and modified Me aluminoxane (MMAO 3A) 70, II (ethylene/norbornene weight ratio 36/64) 20, and II (ethylene/norbornene weight ratio 77/23) 10 parts was extruded into a film showing heat distortion temperature (tensile load 100 mN)  $\geq 100^\circ$ , and no crack nor cutting in punching.
- IT 26007-43-2P, Ethylene-norbornene copolymer  
(cyclic olefin polymer comps. with good transparency and mech. strength for retardation films)
- RN 26007-43-2 HCA
- CN Bicyclo[2.2.1]hept-2-ene, polymer with ethene (CA INDEX NAME)

CM 1

CRN 498-66-8

CMF C7 H10



CM 2

CRN 74-85-1

CMF C2 H4



- IT 74-85-1D, Ethylene, polymers 115-07-1D, Propylene, polymers 498-66-8D, Norbornene, polymers  
(cyclic olefin polymer comps. with good transparency and

mech. strength for retardation films)

RN 74-85-1 HCA

CN Ethene (CA INDEX NAME)



RN 115-07-1 HCA

CN 1-Propene (CA INDEX NAME)



RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IPCI C08L0045-00 [I,A]; C08J0005-18 [I,A]; G02B0005-30 [I,A]

IPCR C08L0045-00 [I,C]; C08L0045-00 [I,A]; C08J0005-18 [I,C]; C08J0005-18 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

ST cyclic olefin polymer compn transparency retardation film; ethylene norbornene polymer blend film optical retarder

IT Plastic films

Transparent films

(cyclic olefin polymer compns. with good transparency and mech. strength for retardation films)

IT Polymer blends

(cyclic olefin polymer compns. with good transparency and mech. strength for retardation films)

IT Optical instruments

(retarders; cyclic olefin polymer compns. with good transparency and mech. strength for retardation films)

IT 26007-43-2F, Ethylene-norbornene copolymer

(cyclic olefin polymer compns. with good transparency and mech. strength for retardation films)

IT 74-85-1D, Ethylene, polymers 115-07-1D, Propylene, polymers 498-66-8D, Norbornene, polymers

(cyclic olefin polymer compns. with good transparency and mech. strength for retardation films)

L43 ANSWER 8 OF 17 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 150:284475 HCA Full-text

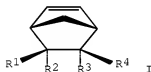
TITLE: Cycloolefin copolymers and their films

showing reverse wavelength dispersion in birefringence

INVENTOR(S): Watanabe, Saisuke  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 28pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

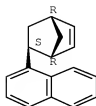
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
JP 2009046614	A	20090305	JP 2007-215194	20070821
PRIORITY APPLN. INFO.:			JP 2007-215194	20070821

GI



- AB Title copolymers, useful for retardation films, are manufactured by addition-polymerization of (A) non-cycloolefin monomers chosen from ethylene and/or C3-20  $\alpha$ -olefins and (B) norbornenes I [R1-R4 = H, halo, (O, N, S, Si-linked) C1-30 hydrocarbyl, polar group;  $\geq 1$  of R1 and R4 is H-removed residual group of an aromatic compound showing maximum absorption at 300-400 nm with molar extinction coefficient 10-100,000]. Thus, 1-bromonaphthalene was reacted with norbornadiene to give exo-1-naphthylnorbornene, which was polymerized with ethylene and norbornene to give a copolymer, which was made into a transparent film showing light transmittance 89%, haze 0.12, retardation at 590 nm (Re590) 145 nm, Re450 130 nm,  $\Delta Re = Re590 - Re450 = 15$ , and  $Re450/Re590 = 0.9$ .
- IT 1005740-11-3P, exo-2-(1-Naphthyl)-5-norbornene  
 1123541-99-0P, exo-2-(1-Pyrenyl)-5-norbornene  
 1123542-00-6P  
 (cycloolefin copolymers for films showing reverse wavelength dispersion in birefringence)
- RN 1005740-11-3 HCA
- CN Bicyclo[2.2.1]hept-2-ene, 5-(1-naphthalenyl)-, (1R,4R,5S)-rel- (CA INDEX NAME)

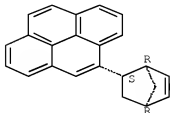
Relative stereochemistry.



RN 1123541-99-0 HCA

CN Pyrene, 4-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-yl-, rel- (CA INDEX NAME)

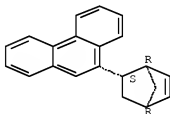
Relative stereochemistry.



RN 1123542-00-6 HCA

CN Phenanthrene, 9-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-yl-, rel- (CA INDEX NAME)

Relative stereochemistry.



IT 1123542-01-7P, Ethylene-exo-2-(1-naphthyl)-5-norbornene-norbornene copolymer 1123542-02-8P, Ethylene-exo-2-(1-pyrenyl)-5-norbornene-norbornene copolymer 1123542-03-9P, Ethylene-exo-2-(1-phenanthrenyl)-5-norbornene-norbornene copolymer 1123542-04-0P, 5-Acetoxy-2-norbornene-ethylene-exo-2-(1-naphthyl)-5-norbornene copolymer (cycloolefin copolymers for films showing reverse wavelength dispersion in birefringence)

RN 1123542-01-7 HCA

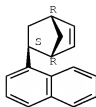
CN Bicyclo[2.2.1]hept-2-ene, 5-(1-naphthalenyl)-, (1R,4R,5S)-rel-, polymer with bicyclo[2.2.1]hept-2-ene and ethene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.



CM 2

CRN 498-66-8

CMF C7 H10



CM 3

CRN 74-85-1

CMF C2 H4



RN 1123542-02-8 HCA

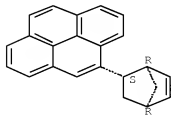
CN Pyrene, 4-((1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-yl)-, rel-, polymer with bicyclo[2.2.1]hept-2-ene and ethene (CA INDEX NAME)

CM 1

CRN 1123541-99-0

CMF C23 H18

Relative stereochemistry.



CM 2  
CRN 498-66-8  
CMF C7 H10



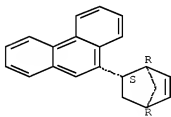
CM 3  
CRN 74-85-1  
CMF C2 H4



RN 1123542-03-9 HCA  
CN Phenanthrene, 9-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-yl-, rel-, polymer  
with bicyclo[2.2.1]hept-2-ene and ethene (CA INDEX NAME)

CM 1  
CRN 1123542-00-6  
CMF C21 H18

Relative stereochemistry.



CM 2  
CRN 498-66-8  
CMF C7 H10





CM 3

CRN 74-85-1

CMF C2 H4



RN 1123542-04-0 HCA

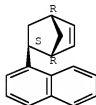
CN Bicyclo[2.2.1]hept-5-en-2-ol, 2-acetate, polymer with ethene and  
rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.



CM 2

CRN 6143-29-9

CMF C9 H12 O2



CM 3

CRN 74-85-1

CMF C2 H4



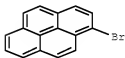
IT 90-11-9, 1-Bromonaphthalene 121-46-0, Norbornadiene  
1714-29-0, 1-Bromopyrene 51958-51-1, 1-Bromophenanthrene  
(cycloolefin copolymers for films showing reverse wavelength  
dispersion in birefringence)  
RN 90-11-9 HCA  
CN Naphthalene, 1-bromo- (CA INDEX NAME)



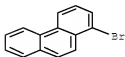
RN 121-46-0 HCA  
CN Bicyclo[2.2.1]hepta-2,5-diene (CA INDEX NAME)



RN 1714-29-0 HCA  
CN Pyrene, 1-bromo- (CA INDEX NAME)



RN 51958-51-1 HCA  
CN Phenanthrene, 1-bromo- (CA INDEX NAME)



IT 74-85-1D, Ethylene, polymers 498-66-8D, Norbornene,  
polymers 21635-90-5D, polymers  
(cycloolefin copolymers for films showing reverse wavelength  
dispersion in birefringence)  
RN 74-85-1 HCA

CN Ethene (CA INDEX NAME)



RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 21635-90-5 HCA

CN 1,4:5,8-Dimethanonaphthalene, 1,2,3,4,4a,5,8,8a-octahydro- (CA INDEX NAME)



IPCI C08F0210-00 [I,A]; G02B0005-30 [I,A]; C08F0232-00 [I,A]; C08J0005-18 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]

IPCR C08F0210-00 [I,C]; C08F0210-00 [I,A]; C08F0232-00 [I,C]; C08F0232-00 [I,A]; C08J0005-18 [I,C]; C08J0005-18 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-13363 [I,A]

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

ST cycloolefin copolymer film reverse wavelength dispersion birefringence; ethylene cycloolefin norbornene copolymer retardation film; naphthylnorbornene norbornene ethylene copolymer film retardation

IT Plastic films

(cycloolefin copolymers for films showing reverse wavelength dispersion in birefringence)

IT Optical films

(retardation films; cycloolefin copolymers for films showing reverse wavelength dispersion in birefringence)

IT 1005740-11-3P, exo-2-(1-Naphthyl)-5-norbornene

1123541-99-0P, exo-2-(1-Pyrenyl)-5-norbornene

1123542-00-6P

(cycloolefin copolymers for films showing reverse wavelength dispersion in birefringence)

IT 1123542-01-7P, Ethylene-exo-2-(1-naphthyl)-5-norbornene-norbornene copolymer 1123542-02-8P,

Ethylene-exo-2-(1-pyrenyl)-5-norbornene-norbornene copolymer

1123542-03-9P, Ethylene-exo-2-(1-phenanthrenyl)-5-norbornene-

norbornene copolymer 1123542-04-0P,

5-Acetoxy-2-norbornene-ethylene-exo-2-(1-naphthyl)-5-norbornene copolymer

(cycloolefin copolymers for films showing reverse wavelength

dispersion in birefringence)  
 IT 90-11-9, 1-Bromonaphthalene 121-46-0, Norbornadiene  
 1714-29-0, 1-Bromopyrene 51958-51-1, 1-Bromophenanthrene  
 (cycloolefin copolymers for films showing reverse wavelength  
 dispersion in birefringence)  
 IT 74-85-1D, Ethylene, polymers 498-66-8D, Norbornene,  
 polymers 21635-90-5D, polymers  
 (cycloolefin copolymers for films showing reverse wavelength  
 dispersion in birefringence)

L43 ANSWER 9 OF 17 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 150:110002 HCA Full-text

TITLE: Optical compensation sheet, polarizing plate  
 and TN-mode liquid crystal display device

INVENTOR(S): Hisakado, Yoshiaki; Ito, Yoji; Ichinose, Tomonori;  
 Miyauchi, Ryosuke

PATENT ASSIGNEE(S): Fujifilm Corporation, Japan

SOURCE: U.S. Pat. Appl. Publ., 20pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 20090009866	A1	20090108	US 2008-167617	20080703
KR 2009004772	A	20090112	KR 2008-65168	20080704
CN 101369071	A	20090218	CN 2008-10135625	20080707
JP 2009037231	A	20090219	JP 2008-177127	20080707
PRIORITY APPLN. INFO.:			JP 2007-178385	A 20070706

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB An optical compensation sheet for a TN-mode liquid crystal display device is provided and includes a transparent film including one or more layers, and the optical compensation sheet satisfies formulas (1) and (2):  $40 \leq \text{Re}(550) \leq 130$  (1);  $100 \leq \text{Rth}(550) \leq 200$  (2) where  $\text{Re}(\lambda)$  is an in-plane retardation value for light at a wavelength of  $\lambda$  nm, and  $\text{Rth}(\lambda)$  is a retardation value in a thickness direction for light at a wavelength of  $\lambda$  nm. The optical compensation sheet is inexpensive and improved in the viewing angle compensating ability and viewing angle-dependent color tint change.

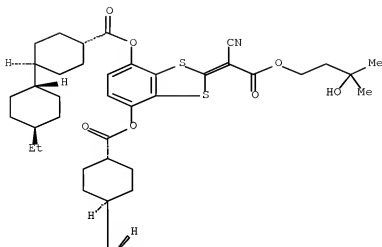
IT 960303-95-1  
 (retardation raising agent; transparent  
 film for optical compensation sheet for liquid crystal  
 displays)

RN 960303-95-1 HCA

CN [1,1'-Bicyclohexyl]-4-carboxylic acid, 4'-ethyl-,  
 4,4'-[2-[1-cyano-2-(3-hydroxy-3-methylbutoxy)-2-oxoethylidene]-1,3-  
 benzodithiole-4,7-diyl] ester, (trans,trans,trans,trans)- (CA INDEX NAME)

Relative stereochemistry.

PAGE 1-A



PAGE 2-A



IT 115-86-6, Triphenyl phosphate 9012-09-3D, Cellulose, triacetate propionate 9085-05-6D, Cellulose acrylate, Cellulose acrylate, acetate 28060-90-4, Glycerin diacetate oleate 46817-52-1, 4-Biphenyl phosphate 628725-21-3 (transparent film for optical compensation sheet for liquid crystal displays)

RN 115-86-6 HCA

CN Phosphoric acid, triphenyl ester (CA INDEX NAME)



RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



RN 9085-05-6 HCA

CN Cellulose, 2-propenoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

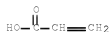
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-10-7

CMF C3 H4 O2



RN 28060-90-4 HCA

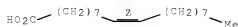
CN 9-Octadecenoic acid (9Z)-, ester with 1,2,3-propanetriol diacetate (CA INDEX NAME)

CM 1

CRN 112-80-1

CMF C18 H34 O2

Double bond geometry as shown.



CM 2

CRN 64-19-7

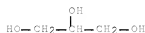
CMF C2 H4 O2



CM 3

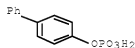
CRN 56-81-5

CMF C3 H8 O3



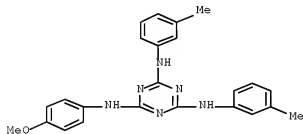
RN 46817-52-1 HCA

CN [1,1'-Biphenyl]-4-ol, 4-(dihydrogen phosphate) (CA INDEX NAME)



RN 628725-21-3 HCA

CN 1,3,5-Triazine-2,4,6-triamine, N2-(4-methoxyphenyl)-N4,N6-bis(3-methylphenyl)- (CA INDEX NAME)



INCL 359500000; 359485000

IPCI G02B0005-30 [I,A]; G02B0001-08 [I,A]

IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02B0001-08 [I,C]; G02B0001-08 [I,A]

NCL 359/500.000; 359/485.000

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST optical compensation sheet polarizing plate liq crystal display

IT Optical films

(Optical compensation film; optical compensation sheet, polarizing plate and TN-mode liquid crystal display device)

IT Liquid crystal displays

(TN-mode liquid crystal display; optical compensation sheet, polarizing plate and TN-mode liquid crystal display device)

IT Polarizers  
(optical compensation sheet, polarizing plate and TN-mode liquid crystal display device)

IT Optical instruments  
(retarders; optical compensation sheet, polarizing plate and TN-mode liquid crystal display device)

IT 960303-95-1  
(retardation raising agent; transparent film for optical compensation sheet for liquid crystal displays)

IT 115-86-6, Triphenyl phosphate 9012-09-3D, Cellulose, triacetate propionate 9085-05-6D, Cellulose acrylate, Cellulose acrylate, acetate 28060-90-4, Glycerin diacetate oleate 46817-52-1, 4-Biphenyl phosphate 628725-21-3  
(transparent film for optical compensation sheet for liquid crystal displays)

L43 ANSWER 10 OF 17 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 149:413225 HCA [Full-text](#)

TITLE: Liquid crystal display provided with an optical phase retarder

INVENTOR(S): Nakamura, Shun

PATENT ASSIGNEE(S): Fujifilm Corporation, Japan

SOURCE: Eur. Pat. Appl., 33pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1975686	A2	20081001	EP 2008-6347	20080331
EP 1975686	A3	20090617		
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, AL, BA, MK, RS				
JP 2008250234	A	20081016	JP 2007-94843	20070330
CN 101276089	A	20081001	CN 2008-10087488	20080328
US 20080239212	A1	20081002	US 2008-58266	20080328
US 7880839	B2	20110201		
KR 2008089281	A	20081006	KR 2008-29253	20080328
			JP 2007-94843	A 20070330

PRIORITY APPLN. INFO.:

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB There is provided a liquid crystal display which includes: a liquid crystal cell containing a pair of transparent substrates and a liquid crystal layer containing liquid crystal mols., sandwiched between the pair of the transparent substrates; and a polarizing plate, disposed on the outer surface of each transparent plate, and comprising at least a polarizer and an optical film containing at least first, second and third optical anisotropic layers.

IT 498-66-8D, Norbornene, derivs., polymers  
(Arton; liquid crystal display provided with an optical phase retarder)

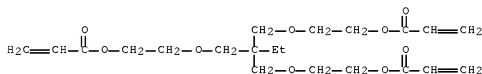
RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

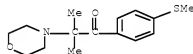




IT 75577-70-7  
 (V 360; liquid crystal display provided with an optical phase retarder)  
 RN 75577-70-7 HCA  
 CN 2-Propenoic acid, 1,1'-[[2-ethyl-2-[[2-[(1-oxo-2-propen-1-yl)oxy]ethoxy]methyl]-1,3-propanediyl]bis(oxy-2,1-ethanediyl)] ester (CA INDEX NAME)



IT 71868-10-5, Irgacure 907  
 (liquid crystal display provided with an optical phase retarder)  
 RN 71868-10-5 HCA  
 CN 1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)- (CA INDEX NAME)



IT 9004-35-7 9004-36-8, CAB 531-1 82504-70-9  
 182154-45-6 187585-64-4 847849-74-5  
 (liquid crystal display provided with an optical phase retarder)  
 RN 9004-35-7 HCA  
 CN Cellulose, acetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CMF C2 H4 O2



RN 9004-36-8 HCA  
CN Cellulose, acetate butanoate (CA INDEX NAME)

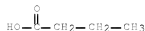
CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 107-92-6  
CMF C4 H8 O2

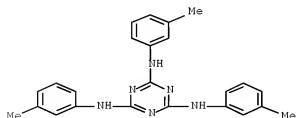


CM 3

CRN 64-19-7  
CMF C2 H4 O2



RN 82504-70-9 HCA  
CN 1,3,5-Triazine-2,4,6-triamine, N2,N4,N6-tris(3-methylphenyl)- (CA INDEX NAME)

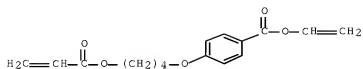


RN 182154-45-6 HCA  
CN Benzoic acid, 4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]-, ethenyl ester, polymer with ethenol and ethenyl acetate (CA INDEX NAME)

CM 1

CRN 182154-44-5

CMF C16 H18 O5



CM 2

CRN 557-75-5

CMF C2 H4 O



CM 3

CRN 108-05-4

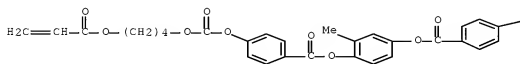
CMF C4 H6 O2



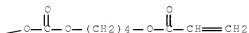
RN 187585-64-4 HCA

CN Benzoic acid, 4-[[[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]carbonyl]oxy]-, 1,1'-(2-methyl-1,4-phenylene) ester (CA INDEX NAME)

PAGE 1-A

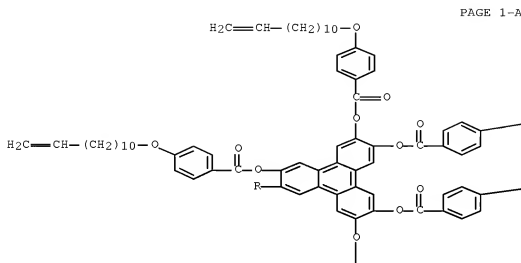


PAGE 1-B

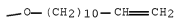
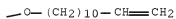


RN 847849-74-5 HCA

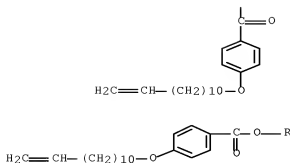
CN Benzoic acid, 4-(11-dodecen-1-yloxy)-,  
 1,1',1'',1''',1''',1''''-(2,3,6,7,10,11-triphenylenehexayl) ester (CA  
 INDEX NAME)



PAGE 1-B



PAGE 2-A



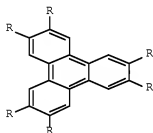
IPCI G02F0001-13363 [I,A]; G02F0001-139 [I,A]  
 IPCR G02F0001-13 [I,C]; G02F0001-13363 [I,A]; G02F0001-139 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST liq crystal display provided optical phase retarder LCD  
 IT Liquid crystal displays  
 Polarizing films  
 (liquid crystal display provided with an optical phase retarder)  
 IT Polyamides, uses  
 Polyesters, uses  
 Polyimides, uses  
 (liquid crystal display provided with an optical phase retarder)  
 IT Polyimides, uses  
 (polyamide-; liquid crystal display provided with an optical phase retarder)  
 IT Polyimides, uses  
 (polyester-; liquid crystal display provided with an optical phase retarder)  
 IT Polyketones  
 (polyether-; liquid crystal display provided with an optical phase retarder)  
 IT Polyamides, uses  
 Polyesters, uses  
 (polyimide-; liquid crystal display provided with an optical phase retarder)  
 IT Polyethers, uses  
 (polyketone-; liquid crystal display provided with an optical phase retarder)  
 IT Cycloalkenes  
 (polymers, Apel; liquid crystal display provided with an optical phase retarder)  
 IT 498-66-8D, Norbornene, derivs., polymers  
 (Arton; liquid crystal display provided with an optical phase retarder)  
 IT 75577-70-7  
 (V 360; liquid crystal display provided with an optical phase retarder)  
 IT 71868-10-5, Irgacure 907  
 (liquid crystal display provided with an optical phase retarder)  
 IT 9004-35-7 9004-36-8, CAB 531-1 82504-70-9  
 182154-45-6 187585-64-4 847849-74-5

(liquid crystal display provided with an optical phase retarder  
)

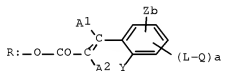
L43 ANSWER 11 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 148:273257 HCA Full-text  
 TITLE: Optically compensating films with decreased  
 film thickness and their polarizers and  
 vertically aligned (VA) LCD  
 INVENTOR(S): Fukuda, Kenichi; Ando, Takumi; Ushiyama, Akinobu  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 37pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008046436	A	20080228	JP 2006-222944	20060818
KR 2008016502	A	20080221	KR 2007-82964	20070817
PRIORITY APPLN. INFO.:			JP 2006-222944	A 20060818
			JP 2006-229134	A 20060825
			JP 2006-229870	A 20060825
			JP 2007-15898	A 20070126

GI



I



II

AB The optically compensating film comprises a polymer film substrate having thereon an optically anisotropic layer and shows surface retardation (Re) 0-10 nm, retardation in the thickness direction (Rth) 100-300 nm, and Rth/d (d = film thickness) 0.65-0.16. Preferably, the optically anisotropic layer is formed from a polymerizable resin composition. Preferably, the polymerizable resin composition contains a photopolymn. initiator with sensitivity of light in 330-450 nm, and the photopolymn. initiators generate halogen radicals. Preferably, the polymerizable composition contains polyfunctional monomers bearing  $\geq 4$  double bonds. Preferably, the polymerizable composition contain discotic liquid crystalline compds. having polymerizable groups and are aligned horizontally toward the discotic structure units of the discotic liquid crystalline compds. Preferably, the discotic liquid crystalline compds. comprise I (R = II; A1, A2 = H, halo, C1-12 alkyl, C1-12 alkoxy; Y = H, halo, C1-12 alkyl, C1-12 alkoxy, C2-13 acyl, C1-12 alkylamino, C2-13 acyloxy; A2 and Y may be bonded together and form 5- or 6-membered ring; Z = halo, C1-12 alkyl, C1-12 alkoxy, C2-13 acyl, C1-12 alkylamino, C2-13 acyloxy;

L = O, CO, S, NH, alkylene, alkenylene, alkynylene, arylene; Q = polymerizable group; a = 1-4 integer;  $0 \leq b \leq 4-a$ ). In another alternative, the polymerizable compns. contain chiral nematic (cholesteric) liquid crystalline compds. Preferably, the optically anisotropic layer contain fluoroaliph. group-containing polymers. In another alternative, the optically anisotropic layers contain polymers which show neg. anisotropic refractive index when coated and have optical axis in the normal line direction of the surface. Preferably, the polymer films comprise cellulose acylate films. The polarizers and the LCD contain the optically compensating films. The LCD may be VA mode. Preferably, the LCD further contains a 2nd optically compensating film of an oriented polymer film having Re(550) 70-180 and Rth(550) 30-140. Preferably, the film comprises a cellulose acylate film, a norbornene-based film, a polycarbonate-based film, a polyester-based film, or a polysulfone-based film.

IT 9002-89-5, Poly(vinyl alcohol)  
(VA liquid crystal cell component; optically compensating films  
with decreased film thickness and their polarizers and  
VA-LCD)

RN 9002-89-5 HCA

CN Ethenol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5

CMF C2 H4 O



IT 776307-09-6  
(assumed monomers, alignment layer; optically compensating  
films with decreased film thickness and their  
polarizers and VA-LCD)

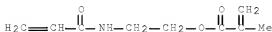
RN 776307-09-6 HCA

CN 2-Propenoic acid, 2-methyl-, 2-[(1-oxo-2-propen-1-yl)amino]ethyl ester,  
polymer with ethenol and methyl 2-propenoate (CA INDEX NAME)

CM 1

CRN 56148-24-4

CMF C9 H13 N O3



CM 2

CRN 557-75-5

CMF C2 H4 O



CM 3

CRN 96-33-3

CMF C4 H6 O2



IT 1007236-89-6

(assumed monomers, component for discotic liquid crystalline compound-containing

coating; optically compensating films with decreased  
film thickness and their polarizers and VA-LCD)

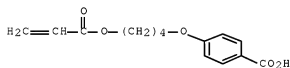
RN 1007236-89-6 HCA

CN Benzoic acid, 4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxyl-, polymer with  
3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl 2-propenoate (CA INDEX NAME)

CM 1

CRN 69260-42-0

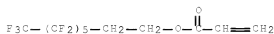
CMF C14 H16 O5



CM 2

CRN 17527-29-6

CMF C11 H7 F13 O2



IT 9004-35-7D, partially saponified

(film; optically compensating films with decreased  
film thickness and their polarizers and VA-LCD)

RN 9004-35-7 HCA

CN Cellulose, acetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified



CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



IT 60842-32-2, Aerosil R 972

(mat agent for cellulose acylate film; optically compensating  
films with decreased film thickness and their  
polarizers and VA-LCD)

RN 60842-32-2 HCA

CN Aerosil R 972 (CA INDEX NAME)

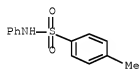
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 68-34-8

(optical anisotropy decreasing agent for cellulose acylate film  
; optically compensating films with decreased film  
thickness and their polarizers and VA-LCD)

RN 68-34-8 HCA

CN Benzenesulfonamide, 4-methyl-N-phenyl- (CA INDEX NAME)

IT 498-66-8D, Norbornene, polymers 9004-34-6D, Cellulose,  
acylates 796073-47-7, Pureace WR

(optically compensating film; optically compensating  
films with decreased film thickness and their  
polarizers and VA-LCD)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9004-34-6 HCA

CN Cellulose (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 796073-47-7 HCA

CN Pureace WR (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

March 10, 2011

10/594,041

50

IT 401624-10-0P 1007236-90-9P

(optically compensating films with decreased film thickness and their polarizers and VA-LCD)

RN 401624-10-0 HCA

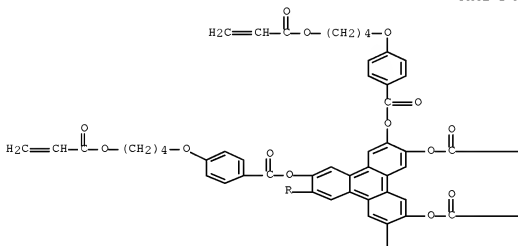
CN Benzoic acid, 4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]-, 1,1',1'',1''',1''''',1''''''-(2,3,6,7,10,11-triphenylenehexayl) ester, polymer with 1,1'-[2-ethyl-2-[[2-[(1-oxo-2-propen-1-yl)oxy]ethoxy]methyl]-1,3-propanediyl]bis[oxo-1,2-ethanediyl)] di-2-propenoate (CA INDEX NAME)

CM 1

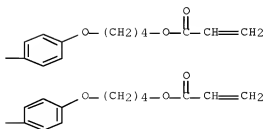
CRN 174079-42-6

CMF C102 H96 O30

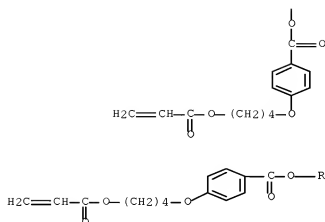
PAGE 1-A



PAGE 1-B



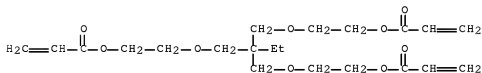
PAGE 2-A



CM 2

CRN 75577-70-7

CMF C21 H32 O9



RN 1007236-90-9 HCA

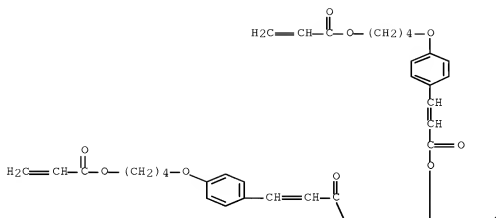
CN 2-Propenoic acid, 3-[4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]phenyl]-, 1,1',1'',1''',1''',1''''-(2,3,6,7,10,11-triphenylenehexayl) ester, polymer with 2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)-1,3-propanediol] 2-propenoate (CA INDEX NAME)

CM 1

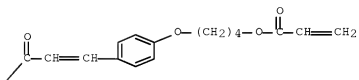
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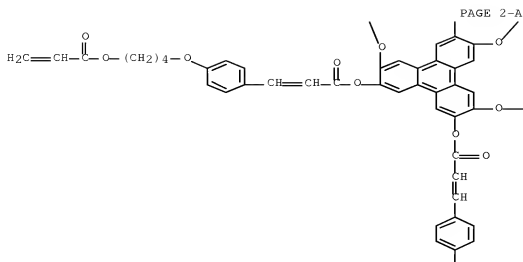
CMF C114 H108 O30

PAGE 1-A

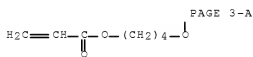
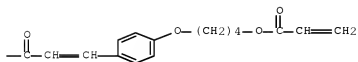


PAGE 1-B





PAGE 2-B



CM 2

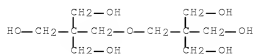
CRN 77641-99-7

CMF C10 H22 O7 . x C3 H4 O2

CM 3

CRN 126-58-9

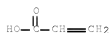
CMF C10 H22 O7



CM 4

CRN 79-10-7

CMF C3 H4 O2



IT 9012-09-3, Fujitac TD 80UF  
(optically compensating films with decreased film  
thickness and their polarizers and VA-LCD)

RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2

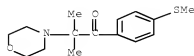


IT 71868-10-5, Irgacure 907 82799-44-8, Kayacure DETX  
137909-39-8

(polymerization initiator; optically compensating films with  
decreased film thickness and their polarizers and VA-LCD)

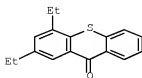
RN 71868-10-5 HCA

CN 1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)- (CA  
INDEX NAME)



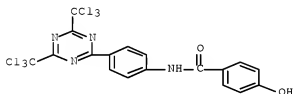
RN 82799-44-8 HCA

CN 9H-Thioxanthen-9-one, 2,4-diethyl- (CA INDEX NAME)



RN 137909-39-8 HCA

CN Benzamide, N-[4-[4,6-bis(trichloromethyl)-1,3,5-triazin-2-yl]phenyl]-4-hydroxy- (CA INDEX NAME)



IT 50926-11-9, ITO

(transparent electrode on glass substrates; optically compensating films with decreased film thickness and their polarizers and VA-LCD)

RN 50926-11-9 HCA

CN Indium tin oxide (CA INDEX NAME)

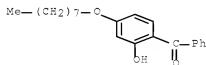
Component	Ratio	Component Registry Number
O	x	17778-80-2
In	x	7440-74-6
Sn	x	7440-31-5

IT 1843-05-6

(wavelength dispersing agent for cellulose acrylate film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)

RN 1843-05-6 HCA

CN Methanone, [2-hydroxy-4-(octyloxy)phenyl]phenyl- (CA INDEX NAME)



IPCI G02B0005-30 [I,A]; G02F0001-13363 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]

IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-1335

- [I,A]; G02F0001-13363 [I,A]
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST optically compensating film polarizer vertically aligned LCD;  
liq crystal display optically compensating film
- IT Liquid crystals  
(cholesteric, polymerizable; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT Fluoropolymers, uses  
(component for discotic liquid crystalline compound-containing coating; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT Liquid crystals  
(discotic, polymerizable; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT Polycarbonates, uses  
Polyesters, uses  
Polysulfones, uses  
(optically compensating film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT Liquid crystal displays  
Polarizers  
(optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT Optical instruments  
(retarders; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 9002-09-5, Poly(vinyl alcohol)  
(VA liquid crystal cell component; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 776307-09-6  
(assumed monomers, alignment layer; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 1007236-09-6  
(assumed monomers, component for discotic liquid crystalline compound-containing coating; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 9004-35-7D, partially saponified  
(film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 60842-32-2, Aerosil R 972  
(mat agent for cellulose acylate film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 68-34-8  
(optical anisotropy decreasing agent for cellulose acylate film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 498-66-8D, Norbornene, polymers 9004-34-6D, Cellulose, acylates 796073-47-7, Pureace WR  
(optically compensating film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 401624-10-0P 1007236-90-9P  
(optically compensating films with decreased film

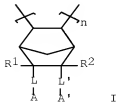


- thickness and their polarizers and VA-LCD)
- IT 9012-09-3, Fujitac TD 80UF  
(optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 71368-10-5, Irgacure 907 82799-44-8, Kayacure DETX 137909-39-3  
(polymerization initiator; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 50926-11-9, ITO  
(transparent electrode on glass substrates; optically compensating films with decreased film thickness and their polarizers and VA-LCD)
- IT 1843-05-6  
(wavelength dispersing agent for cellulose acylate film; optically compensating films with decreased film thickness and their polarizers and VA-LCD)

L43 ANSWER 12 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 148:239678 HCA Full-text  
 TITLE: Norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays  
 INVENTOR(S): Watanabe, Saisuke; Nozoe, Yutaka; Sakurai, Seiya; Takeuchi, Kiyoshi  
 PATENT ASSIGNEE(S): FujiFilm Corporation, Japan  
 SOURCE: U.S. Pat. Appl. Publ., 32pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080033133	A1	20080207	US 2007-828479	20070726
US 7550546	B2	20090623		
JP 2008031319	A	20080214	JP 2006-207151	20060728
JP 2008031320	A	20080214	JP 2006-207152	20060728
KR 2008011090	A	20080131	KR 2007-75121	20070726
PRIORITY APPLN. INFO.:			JP 2006-207151	A 20060728
			JP 2006-207152	A 20060728

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 OTHER SOURCE(S): CASREACT 148:239678  
 GI



- AB The invention relates to norbornene-based polymers and functional films obtained from such polymers, which can be used in production of polarization plates for liquid crystal displays. A norbornene-based polymer comprises at least one type of a repeating unit represented by the formula I, where R1 and R2 each represent H, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, L and L' each represent a bivalent linking group or a single bond, and A and A' each represent an aromatic group. Thus, a polymer comprising 22% of exo,exo-2,3-diphenyl-5-norbornene, 76% of endo-2-hydroxymethyl-5-norbornene butyrate and about 2% of 1-hexene units and having a number-average mol. weight of 73,900 and a weight-average mol. weight of 235,600 was cast from a methylene chloride solution to obtain a transparent film. The film stretched 40% at 250° had a retardation value Re (590 nm wavelength and 80  $\mu$ m film thickness) of 70.2 nm.
- IT 90-11-9, 1-Bromonaphthalene 313-39-3, Diphenyliodonium tetrafluoroborate 536-74-3, Phenylacetylene 630-08-0, Carbon monoxide, reactions  
(in preparation of monomers; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)
- RN 90-11-9 HCA
- CN Naphthalene, 1-bromo- (CA INDEX NAME)



- RN 313-39-3 HCA
- CN Iodonium, diphenyl-, tetrafluoroborate(1-) (1:1) (CA INDEX NAME)
- CM 1
- CRN 14874-70-5
- CMF B F4
- CCI CCS



- CM 2
- CRN 10182-84-0
- CMF C12 H10 I



- RN 536-74-3 HCA
- CN Benzene, ethynyl- (CA INDEX NAME)



RN 630-08-0 HCA  
 CN Carbon monoxide (CA INDEX NAME)



IT 77-73-6, Dicyclopentadiene 90-14-2, 1-Iodonaphthalene  
 100-42-5, Styrene, reactions 108-86-1, Bromobenzene,  
 reactions 121-46-0, Norbornadiene 123-68-2, Allyl  
 hexanoate 143-66-8, Sodium tetraphenyl borate 591-50-4  
 , Iodobenzene 591-87-7, Allyl acetate 1714-29-0,  
 1-Bromopyrene 2051-78-7, Allyl butyrate  
 (in preparation of monomers; norbornene-based polymers, retardation  
 films and polarizing plates for liquid crystal displays)  
 RN 77-73-6 HCA  
 CN 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- (CA INDEX NAME)



RN 90-14-2 HCA  
 CN Naphthalene, 1-iodo- (CA INDEX NAME)



RN 100-42-5 HCA  
 CN Benzene, ethenyl- (CA INDEX NAME)



RN 108-86-1 HCA  
 CN Benzene, bromo- (CA INDEX NAME)



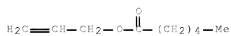
RN 121-46-0 HCA

CN Bicyclo[2.2.1]hepta-2,5-diene (CA INDEX NAME)



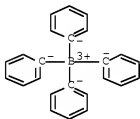
RN 123-68-2 HCA

CN Hexanoic acid, 2-propen-1-yl ester (CA INDEX NAME)



RN 143-66-8 HCA

CN Borate(1-), tetraphenyl-, sodium (1:1) (CA INDEX NAME)



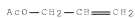
RN 591-50-4 HCA

CN Benzene, iodo- (CA INDEX NAME)

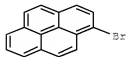


RN 591-87-7 HCA

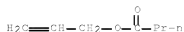
CN Acetic acid, 2-propen-1-yl ester (CA INDEX NAME)



RN 1714-29-0 HCA  
 CN Pyrene, 1-bromo- (CA INDEX NAME)

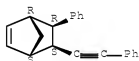


RN 2051-78-7 HCA  
 CN Butanoic acid, 2-propen-1-yl ester (CA INDEX NAME)



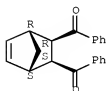
IT 152842-69-8P 173006-07-0P 1005739-91-2P  
 1005739-92-3P  
 (monomer; norbornene-based polymers, retardation  
 films and polarizing plates for liquid crystal displays)  
 RN 152842-69-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene, 5-phenyl-6-(2-phenylethynyl)-,  
 (1R,4S,5S,6R)-rel- (CA INDEX NAME)

Relative stereochemistry.



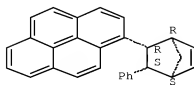
RN 173006-07-0 HCA  
 CN Methanone, 1,1'-[(1R,2R,3S,4S)-bicyclo[2.2.1]hept-5-ene-2,3-diylbis[1-  
 phenyl-, rel- (CA INDEX NAME)

Relative stereochemistry.



RN 1005739-91-2 HCA  
 CN Pyrene, 1-[(1R,2R,3S,4S)-3-phenylbicyclo[2.2.1]hept-5-en-2-yl]-, rel- (CA  
 INDEX NAME)

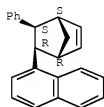
Relative stereochemistry.



RN 1005739-92-3 HCA

CN Bicyclo[2.2.1]hept-2-ene, 5-(1-naphthalenyl)-6-phenyl-, (1R,4S,5S,6R)-rel-  
(CA INDEX NAME)

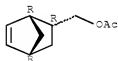
Relative stereochemistry.

IT 16053-06-8P 26280-24-0P 41914-91-4P  
214536-12-6P 1005739-93-4P 1005740-07-7P  
1005740-11-3P 1005740-12-4P(monomer; norbornene-based polymers, retardation  
films and polarizing plates for liquid crystal displays)

RN 16053-06-8 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel- (CA INDEX  
NAME)

Relative stereochemistry.



RN 26280-24-0 HCA

CN Bicyclo[2.2.1]hept-2-ene, 5-phenyl-, (1R,4R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RN 41914-91-4 HCA

CN Bicyclo[2.2.1]hept-2-ene, 5-phenyl-, (1R,4R,5R)-rel- (CA INDEX NAME)

Relative stereochemistry.



RN 214536-12-6 HCA

CN Bicyclo[2.2.1]hept-2-ene, 5,6-diphenyl-, (1R,4S,5S,6R)-rel- (CA INDEX NAME)

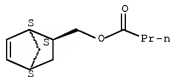
Relative stereochemistry.



RN 1005739-93-4 HCA

CN Butanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel- (CA INDEX NAME)

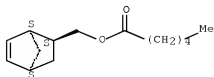
Relative stereochemistry.



RN 1005740-07-7 HCA

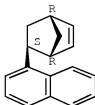
CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel- (CA INDEX NAME)

Relative stereochemistry.



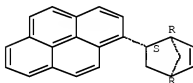
RN 1005740-11-3 HCA  
 CN Bicyclo[2.2.1]hept-2-ene, 5-(1-naphthalenyl)-, (1R,4R,5S)-rel- (CA INDEX NAME)

Relative stereochemistry.



RN 1005740-12-4 HCA  
 CN Pyrene, 1-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-yl-, rel- (CA INDEX NAME)

Relative stereochemistry.



IT 1005739-94-5P 1005739-96-7P 1005739-97-8P  
 1005739-98-9P 1005739-99-0P 1005740-00-0P  
 1005740-01-1P 1005740-03-3P 1005740-04-4P  
 1005740-05-5P 1005740-06-6P 1005740-09-9P  
 1005740-10-2P 1005740-13-5P 1005740-14-6P  
 1005740-15-7P 1005740-16-8P 1005740-17-9P  
 1005740-19-1P 1005740-20-4P 1005740-21-5P  
 1005740-22-6P 1005740-23-7P  
 (norbornene-based polymers, retardation films and  
 polarizing plates for liquid crystal displays)

RN 1005739-94-5 HCA  
 CN Bicyclo[2.2.1]hept-2-ene, 5,6-diphenyl-, (1R,4S,5S,6R)-rel-, homopolymer  
 (CA INDEX NAME)

CM 1

CRN 214536-12-6

CMF C19 H18

Relative stereochemistry.





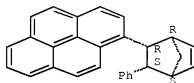
RN 1005739-96-7 HCA  
CN Pyrene, 1-[(1R,2R,3S,4S)-3-phenylbicyclo[2.2.1]hept-5-en-2-yl]-, rel-, homopolymer (CA INDEX NAME)

CM 1

CRN 1005739-91-2

CMF C29 H22

Relative stereochemistry.



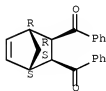
RN 1005739-97-8 HCA  
CN Methanone, 1,1'-[(1R,2R,3S,4S)-bicyclo[2.2.1]hept-5-ene-2,3-diyl]bis[1-phenyl-, rel-, homopolymer (CA INDEX NAME)

CM 1

CRN 173006-07-0

CMF C21 H18 O2

Relative stereochemistry.



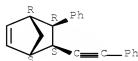
RN 1005739-98-9 HCA  
CN Bicyclo[2.2.1]hept-2-ene, 5-phenyl-6-(2-phenylethynyl)-, (1R,4S,5S,6R)-rel-, homopolymer (CA INDEX NAME)

CM 1

CRN 152842-69-8

CMF C21 H18

Relative stereochemistry.



RN 1005739-99-0 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer with rel-(1R,4S,5S,6R)-5,6-diphenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 214536-12-6

CMF C19 H18

Relative stereochemistry.

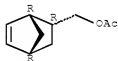


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-00-0 HCA

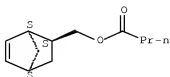
CN Butanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-, polymer with rel-(1R,4S,5S,6R)-5,6-diphenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005739-93-4

CMF C12 H18 O2

Relative stereochemistry.



CM 2

CRN 214536-12-6

CMF C19 H18

Relative stereochemistry.



RN 1005740-01-1 HCA

CN Bicyclo[2.2.1]hept-5-en-2-ol, 2-acetate, (1R,2R,4R)-rel-, polymer with rel-(1R,4S,5S,6R)-5,6-diphenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 214536-12-6

CMF C19 H18

Relative stereochemistry.



CM 2

CRN 2890-95-1

CMF C9 H12 O2

Relative stereochemistry.



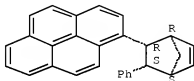
RN 1005740-03-3 HCA  
 CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer  
 with rel-1-[(1R,2R,3S,4S)-3-phenylbicyclo[2.2.1]hept-5-en-2-yl]pyrene (CA  
 INDEX NAME)

CM 1

CRN 1005739-91-2

CMF C29 H22

Relative stereochemistry.

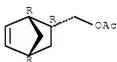


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-04-4 HCA

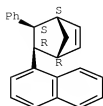
CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer  
 with rel-(1R,4S,5S,6R)-5-(1-naphthalenyl)-6-phenylbicyclo[2.2.1]hept-2-ene  
 (CA INDEX NAME)

CM 1

CRN 1005739-92-3

CMF C23 H20

Relative stereochemistry.

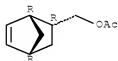


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-05-5 HCA

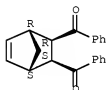
CN Methanone, 1,1'-[(1R,2R,3S,4S)-bicyclo[2.2.1]hept-5-ene-2,3-diyl]bis[1-phenyl-, rel-, polymer with rel-(1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl acetate (CA INDEX NAME)

CM 1

CRN 173006-07-0

CMF C21 H18 O2

Relative stereochemistry.

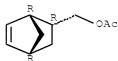


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-06-6 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer

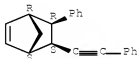
with rel-(1R,4S,5S,6R)-5-phenyl-6-(2-phenylethynyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 152842-69-8

CMF C21 H18

Relative stereochemistry.

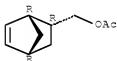


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-09-9 HCA

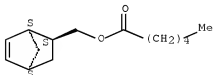
CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-, polymer with rel-1-[(1R,2R,3S,4S)-3-phenylbicyclo[2.2.1]hept-5-en-2-yl]pyrene (CA INDEX NAME)

CM 1

CRN 1005740-07-7

CMF C14 H22 O2

Relative stereochemistry.

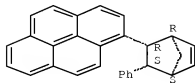


CM 2

CRN 1005739-91-2

CMF C29 H22

Relative stereochemistry.



RN 1005740-10-2 HCA

CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer with rel-(1R,2R,4R)-5-phenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 41914-91-4

CMF C13 H14

Relative stereochemistry.

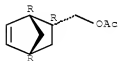


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-13-5 HCA

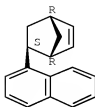
CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-, polymer with rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.

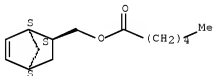


CM 2

CRN 1005740-07-7

CMF C14 H22 O2

Relative stereochemistry.



RN 1005740-14-6 HCA

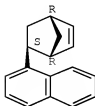
CN Butanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-,  
 polymer with rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene  
 (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.



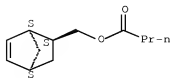
CM 2

CRN 1005739-93-4

CMF C12 H18 O2



Relative stereochemistry.



RN 1005740-15-7 HCA

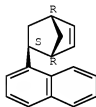
CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer with rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.

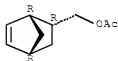


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-16-8 HCA

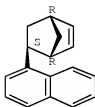
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.



CM 2

CRN 6203-08-3

CMF C9 H12 O2



RN 1005740-17-9 HCA

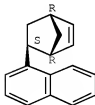
CN Bicyclo[2.2.1]hept-5-en-2-ol, 2-acetate, polymer with  
rel-(1R,4R,5S)-5-(1-naphthalenyl)bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-11-3

CMF C17 H16

Relative stereochemistry.



CM 2

CRN 6143-29-9

CMF C9 H12 O2

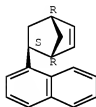


RN 1005740-19-1 HCA  
 CN Bicyclo[2.2.1]hept-2-ene, 5-(1-naphthalenyl)-, (1R,4R,5S)-rel-, polymer with 1-octene (CA INDEX NAME)

CM 1

CRN 1005740-11-3  
 CMF C17 H16

Relative stereochemistry.



CM 2

CRN 111-66-0  
 CMF C8 H16

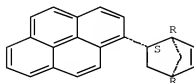
H<sub>2</sub>C=CH-(CH<sub>2</sub>)<sub>5</sub>-Me

RN 1005740-20-4 HCA  
 CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-, polymer with rel-1-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-ylpyrene (CA INDEX NAME)

CM 1

CRN 1005740-12-4  
 CMF C23 H18

Relative stereochemistry.

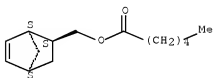


CM 2

CRN 1005740-07-7

CMF C14 H22 O2

Relative stereochemistry.



RN 1005740-21-5 HCA

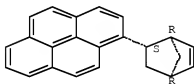
CN Bicyclo[2.2.1]hept-5-ene-2-methanol, 2-acetate, (1R,2R,4R)-rel-, polymer with rel-1-(1R,2S,4R)-bicyclo[2.2.1]hept-5-en-2-ylpyrene (CA INDEX NAME)

CM 1

CRN 1005740-12-4

CMF C23 H18

Relative stereochemistry.

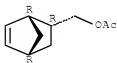


CM 2

CRN 16053-06-8

CMF C10 H14 O2

Relative stereochemistry.



RN 1005740-22-6 HCA

CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-,

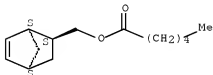
polymer with rel-(1R,2R,4R)-5-phenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-07-7

CMF C14 H22 O2

Relative stereochemistry.



CM 2

CRN 41914-91-4

CMF C13 H14

Relative stereochemistry.



RN 1005740-23-7 HCA

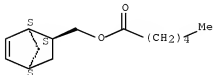
CN Hexanoic acid, (1R,2R,4R)-bicyclo[2.2.1]hept-5-en-2-ylmethyl ester, rel-, polymer with rel-(1R,4R,5S)-5-phenylbicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

CM 1

CRN 1005740-07-7

CMF C14 H22 O2

Relative stereochemistry.



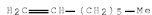
CM 2

CRN 26280-24-0  
CMF C13 H14

Relative stereochemistry.



IT 111-66-0, 1-Octene 498-66-8, Bicyclo[2.2.1]hept-2-ene  
6143-29-9 6203-08-3  
(norbornene-based polymers, retardation films and  
polarizing plates for liquid crystal displays)  
RN 111-66-0 HCA  
CN 1-Octene (CA INDEX NAME)



RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 6143-29-9 HCA  
CN Bicyclo[2.2.1]hept-5-en-2-ol, 2-acetate (CA INDEX NAME)



RN 6203-08-3 HCA  
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester (CA INDEX NAME)



INCL 526280000  
IPCI C08F0010-14 [I,A]; C08F0010-00 [I,C\*]; C08F0032-00 [I,A]; C09K0019-38

[I,A]; C07C0013-24 [N,A]; C07C0013-00 [N,C\*]  
 IPCR C08F0032-00 [I,C]; C08F0032-00 [I,A]; C07C0013-00 [N,C]; C07C0013-24 [N,A]; C09K0019-38 [I,C]; C09K0019-38 [I,A]  
 NCL 526/280.000; 526/281.000; 349/117.000; 428/001.300; 526/256.000; 526/259.000  
 CC 35-4 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 74  
 ST arylbornene polymer retardation film polarizing plate liq crystal display  
 IT Liquid crystal displays  
 (norbornene-based polymers, retardation films and polarizing plates for)  
 IT Laminated plastic films  
 Optical films  
 Plastic films  
 Polarizers  
 (norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT Optical instruments  
 (retarders; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 90-11-9, 1-Bromonaphthalene 313-39-3, Diphenyliodonium tetrafluoroborate 536-74-3, Phenylacetylene 630-08-0, Carbon monoxide, reactions  
 (in preparation of monomers; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 77-73-6, Dicyclopentadiene 90-14-2, 1-Iodonaphthalene 100-42-5, Styrene, reactions 108-86-1, Bromobenzene, reactions 121-46-0, Norbornadiene 123-68-2, Allyl hexanoate 143-66-8, Sodium tetraphenyl borate 591-50-4, Iodobenzene 591-87-7, Allyl acetate 1714-29-0, 1-Bromopyrene 2051-78-7, Allyl butyrate  
 (in preparation of monomers; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 152842-69-8P 173006-07-0P 1005739-91-2P 1005739-92-3P  
 (monomer; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 16053-06-8P 26280-24-0P 41914-91-4P 214536-12-6P 1005739-93-4P 1005740-07-7P 1005740-11-3P 1005740-12-4P  
 (monomer; norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 1005739-94-5P 1005739-96-7P 1005739-97-8P 1005739-98-9P 1005739-99-0P 1005740-00-0P 1005740-01-1P 1005740-03-3P 1005740-04-4P 1005740-05-5P 1005740-06-6P 1005740-09-9P 1005740-10-2P 1005740-13-5P 1005740-14-6P 1005740-15-7P 1005740-16-8P 1005740-17-9P 1005740-19-1P 1005740-20-4P 1005740-21-5P 1005740-22-6P 1005740-23-7P  
 (norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)  
 IT 111-66-0, 1-Octene 498-66-8, Bicyclo[2.2.1]hept-2-ene 6143-29-9 6203-08-3  
 (norbornene-based polymers, retardation films and polarizing plates for liquid crystal displays)

## RETABLE

Referenced Author	Year   VOL   PG	Referenced Work
(RAU)	(RPY)   (RVL)   (RPG)	(RWK)   File

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=====+-----+-----+-----+-----+
Abe |1996 | | |US 5559199 A |HCA
Anon |2004 | | |WO 2004007587 A1 |HCA
Anon |2004 | | |WO 2004049011 A2 |HCA
Liaw |2005 | | |US 20050182220 A1 |HCA
Liu |2002 | | |US 6429272 B1 |HCA
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(3 CITINGS)

```

L43 ANSWER 13 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 147:324266 HCA Full-text  
 TITLE: Transparent polymer film and  
 method for producing it, and retardation  
 film, polarizer and liquid crystal display  
 device comprising the film  
 INVENTOR(S): Sasada, Yasuyuki  
 PATENT ASSIGNEE(S): Fujifilm Corporation, Japan  
 SOURCE: PCT Int. Appl., 52pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

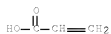
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007100025	A1	20070907	WO 2007-JP53861	20070222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM JP 2007256938 A 20071004 JP 2007-40864 20070221 CN 101389986 A 20090318 CN 2007-80006459 20080822 KR 2008108472 A 20081215 KR 2008-7022997 20080919 PRIORITY APPLN. INFO.: JP 2006-44733 A 20060222 WO 2007-JP53861 W 20070222				
AB	A transparent polymer film satisfying Rth/Re -0.39, Re>0 and Rth<0 and having a moisture permeability of 100-2000 g/(m <sup>2</sup> ·day) at 40° and a relative humidity of 90%, and not containing an additive composition that raises Rth by at least 8 nm.			
IT	9085-05-6P, Cellulose acrylate (liquid crystal display device comprising cellulose acrylate film)			
RN	9085-05-6 HCA			
CN	Cellulose, 2-propenoate (CA INDEX NAME)			
CM	1			
CRN	9004-34-6			
CMF	Unspecified			
CCI	PMS, MAN			
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***				



CM 2

CRN 79-10-7

CMF C3 H4 O2



IT 115-86-6, Triphenyl phosphate 7631-86-9, Silicon  
dioxide, uses 60893-79-0, Biphenyldiphenyl phosphate  
677353-89-8  
(liquid crystal display device comprising cellulose acylate film  
)  
RN 115-86-6 HCA  
CN Phosphoric acid, triphenyl ester (CA INDEX NAME)



RN 7631-86-9 HCA  
CN Silica (CA INDEX NAME)



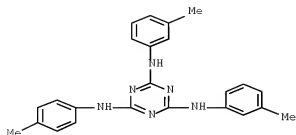
RN 60893-79-0 HCA  
CN Phosphoric acid, [1,1'-biphenyl]yl diphenyl ester (CA INDEX NAME)



D1-Ph



RN 677353-89-8 HCA  
CN 1,3,5-Triazine-2,4,6-triamine, N2,N4-bis(3-methylphenyl)-N6-(4-methylphenyl)- (CA INDEX NAME)



IPCI G02B0005-30 [I,A]; B29C0055-02 [I,A]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]  
 IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; B29C0055-02 [I,C]; B29C0055-02 [I,A]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73  
 ST heat treatment cellulose acrylate film polarizer  
 IT Elongation, mechanical  
 Heat treatment  
 Liquid crystal displays  
 Plastic films  
 Polarizers  
 Polarizing films  
 Swelling, physical  
 (liquid crystal display device comprising cellulose acrylate film)  
 IT 9085-05-6P, Cellulose acrylate  
 (liquid crystal display device comprising cellulose acrylate film)  
 IT 115-86-6, Triphenyl phosphite 7631-86-9, Silicon dioxide, uses 60893-79-0, Biphenyldiphenyl phosphite 677353-89-8  
 (liquid crystal display device comprising cellulose acrylate film)

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Fuji Photo Film Co Ltd	2005			JP 2005120352 A	HCA
Fuji Photo Film Co Ltd	2006			WO 20061284 A1	
Fuji Photo Film Co Ltd	2006			JP 200630937 A	

L43 ANSWER 14 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 143:376598 HCA Full-text  
 TITLE: Transparent film and optical compensatory film, polarizing plate and liquid crystal display device employing it  
 INVENTOR(S): Nakayama, Hajime; Saito, Yukito  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 176 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

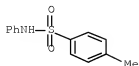
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005093476	A1	20051006	WO 2005-JP6209	20050324
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RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CN 1950731	A	20070418	CN 2005-80013973	20050324
CN 100447594	C	20081231		
JP 2007530989	T	20071101	JP 2006-533385	20050324
JP 4055861	B2	20080305		
KR 2007020233	A	20070220	KR 2006-7022210	20061025
US 20070285603	A1	20071213	US 2007-594041	20070718
PRIORITY APPLN. INFO.:			JP 2004-90319	A 20040325
			JP 2004-90320	A 20040325
			WO 2005-JP6209	W 20050324

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OTHER SOURCE(S): MARPAT 143:376598

- AB A novel transparent film is disclosed.  $Re(\lambda)$  and  $Rth(\lambda)$  of the film defined by the following formulas (I):  $Re(\lambda) = (n_x - n_y) \times d$ , and (II):  $Rth(\lambda) = \{(n_x + n_y)/2 - n_z\} \times d$ , satisfy the following formulas (III):  $0 \leq |Re(630)| \leq 50$ , (IV):  $Rth(400) \times Rth(700) \leq 0$ , and  $0 \leq |Rth(700) - Rth(400)| \leq 150$ , wherein  $Re(\lambda)$  means an in-plane retardation value at a wavelength  $\lambda$  nm (unit: nm);  $Rth(\lambda)$  means a thickness-direction retardation value at a wavelength  $\lambda$  nm (unit: nm);  $n_x$  means a refractive index in the in-plane slow-axis direction;  $n_y$  means a refractive index in the in-plane fast-axis direction;  $n_z$  means a refractive index in the film thickness direction; and  $d$  means a thickness of the film.
- IT 498-66-8D, Bicyclo[2.2.1]hept-2-ene, polymers  
(Zeonor; transparent film and optical compensatory  
film for polarizing plate and liquid crystal display containing)
- RN 498-66-8 HCA
- CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

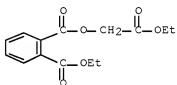


- IT 68-34-8 84-72-0 9085-05-6, Cellulose acrylate  
24936-68-3, Panlite C1400, uses 54547-34-1,  
Trimethylolpropane tribenzoate 550309-32-5 866416-20-8  
(transparent film and optical compensatory  
film for polarizing plate and liquid crystal display containing)
- RN 68-34-8 HCA
- CN Benzenesulfonamide, 4-methyl-N-phenyl- (CA INDEX NAME)



RN 84-72-0 HCA

CN 1,2-Benzenedicarboxylic acid, 1-(2-ethoxy-2-oxoethyl) 2-ethyl ester (CA INDEX NAME)



RN 9085-05-6 HCA

CN Cellulose, 2-propenoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

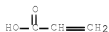
CCI PMS, MAN

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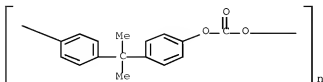
CRN 79-10-7

CMF C3 H4 O2



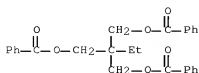
RN 24936-68-3 HCA

CN Poly[oxy-carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



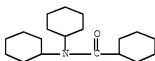
RN 54547-34-1 HCA

CN 1,3-Propanediol, 2-[(benzoyloxy)methyl]-2-ethyl-, 1,3-dibenzoate (CA INDEX NAME)



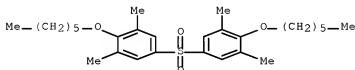
RN 550309-32-5 HCA

CN Cyclohexanecarboxamide, N,N-dicyclohexyl- (CA INDEX NAME)



RN 866416-20-8 HCA

CN Benzene, 1,1'-sulfonylbis[4-(hexyloxy)-3,5-dimethyl- (CA INDEX NAME)]



IPCI G02B0005-30 [ICM,7]; C08J0005-18 [ICS,7]; G02F0001-1335 [ICS,7];  
 G02F0001-13 [ICS,7,C\*]; G02F0001-1336 [ICS,7]; C08L0101-00 [ICS,7]  
 IPCR C08J0005-18 [I,C\*]; C08J0005-18 [I,A]; G02B0005-30 [I,C\*]; G02B0005-30  
 [I,A]; G02F0001-13 [I,C\*]; G02F0001-1335 [I,A]; G02F0001-1336 [I,A];  
 G02F0001-1339 [N,A]; G02F0001-1343 [N,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38  
 ST transparent film optical compensatory polarizing plate  
 liq crystal display  
 IT Liquid crystal displays  
 Optical films  
 (transparent film and optical compensatory  
 film for polarizing plate and liquid crystal display)  
 IT Polyamide fibers, uses  
 (transparent film and optical compensatory  
 film for polarizing plate and liquid crystal display containing)  
 IT 498-66-8D, Bicyclo[2.2.1]hept-2-ene, polymers  
 (Zeonor; transparent film and optical compensatory  
 film for polarizing plate and liquid crystal display containing)  
 IT 68-34-8 84-72-0 9085-05-6, Cellulose acrylate  
 24936-68-3, Panlite C1400, uses 54547-34-1,  
 Trimethylolpropane tribenzoate 550309-32-5 866416-20-8  
 (transparent film and optical compensatory

film for polarizing plate and liquid crystal display containing)

## RETABLE

Referenced Author (RAU)	Year     (RPY)	VOL     (RVL)	PG     (RPG)	Referenced Work (RWK)	Referenced File
Fuji Photo Film Co Ltd	2004			EP 1497678 A1	
Fuji Photo Film Co Ltd	2004			WO 2003089965 A1	
Fuji Photo Film Co Ltd	2004			JP 20044550 B1	
Teijin Limited	2001			EP 1118885 A1	
Teijin Limited	2001			WO 2001009649 A1	
Teijin Limited	2001			JP 2001318233 A	HCA
Teijin Limited	2001			JP 200142121 A	
Teijin Limited	2001			JP 200142123 A	
Teijin Limited	2001			US 6638582 B1	HCA
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)					

L43 ANSWER 15 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 142:208079 HCA Full-text  
 TITLE: Optical compensation sheet, polarizer, and  
 liquid crystal display device  
 INVENTOR(S): Nakamura, Akira  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2005037809	A	20050210	JP 2003-276588	20030718
PRIORITY APPLN. INFO.:			JP 2003-276588	20030718

AB The compensation sheet comprises 1st optical anisotropic layer made of discotic liquid crystal compound and 2nd anisotropic layer made of a cholesteric liquid crystal compound having helical pitch short enough to make selective reflection range shorter than visible light wavelength. In the polarizing plate comprising polarizing film sandwiched between a pair of transparent protective layers (A), one of A is the above optical compensation sheet. The liquid crystal device comprises a liquid crystal cell, a polarizing plate, and the above optical compensation sheet between them. The liquid crystal device comprises a liquid crystal cell sandwiched between a pair of the polarizing plates with the protective layers (A),  $\geq 1$  of A between the cell and the polarizing film is the above optical compensation sheet. The liquid crystal cell is completely compensated and high contrast images with wide viewing angle is obtained.

IT 498-66-8D, Norbornene, derivative, polymer  
 (Arton, substrate; liquid crystal display using optical compensation sheet having discotic liq crystal and cholesteric liquid crystal anisotropic layers)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 457053-13-3P, LC 242-LC 756 copolymer 838837-34-6P  
 (anisotropic layer; liquid crystal display using optical  
 compensation sheet having discotic liq crystal and  
 cholesteric liquid crystal anisotropic layers)

RN 457053-13-3 HCA

CN Benzoic acid, 4-[[[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]carbonyl]oxy]-,  
 1,1'-(2-methyl-1,4-phenylene) ester, polymer with Paliocolor LC 756 (CA  
 INDEX NAME)

CM 1

CRN 457053-05-3

CMF Unspecified

CCI MAN

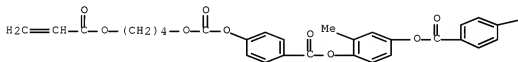
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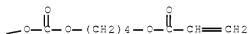
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CMF C37 H36 O14

PAGE 1-A



PAGE 1-B



RN 838837-34-6 HCA

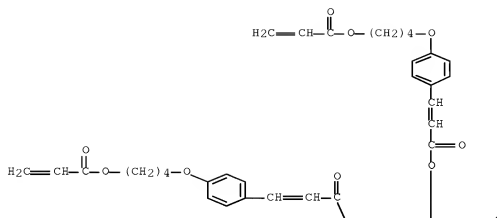
CN 2-Propenoic acid, 3-[4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]phenyl]-,  
 2,3,6,7,10,11-triphenylenehexayl ester, homopolymer (CA INDEX NAME)

CM 1

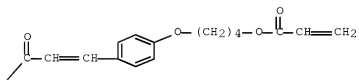
CRN 332112-04-6

CMF C114 H108 O30

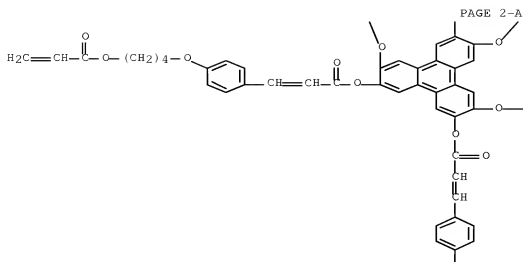
PAGE 1-A



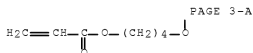
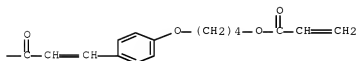
PAGE 1-B







PAGE 2-B



IT 66230-67-9, ZLI 1132  
 (liquid crystal; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)

RN 66230-67-9 HCA

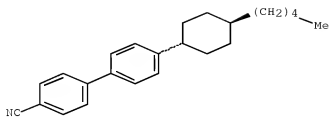
CN [1,1'-Biphenyl]-4-carbonitrile, 4'-(4-pentylcyclohexyl)-, trans-, mixt.  
 with 4-(trans-4-heptylcyclohexyl)benzonitrile,  
 4-(trans-4-pentylcyclohexyl)benzonitrile and  
 4-(trans-4-propylcyclohexyl)benzonitrile (CA INDEX NAME)

CM 1

CRN 68065-81-6

CMF C24 H29 N

Relative stereochemistry.

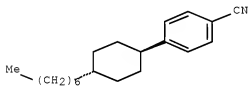


CM 2

CRN 61204-03-3

CMF C20 H29 N

Relative stereochemistry.

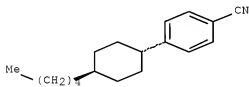


CM 3

CRN 61204-01-1

CMF C18 H25 N

Relative stereochemistry.

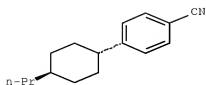


CM 4

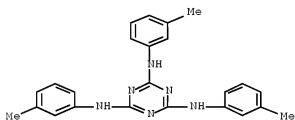
CRN 61203-99-4

CMF C16 H21 N

Relative stereochemistry.



IT 82504-70-9  
 (retardation increasing agent; liquid crystal display using  
 optical compensation sheet having discotic liq crystal and  
 cholesteric liquid crystal anisotropic layers)  
 RN 82504-70-9 HCA  
 CN 1,3,5-Triazine-2,4,6-triamine, N2,N4,N6-tris(3-methylphenyl)- (CA INDEX  
 NAME)



IT 9004-35-7 9012-09-3D, Fujitac TD 80U, saponified  
 (substrate; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)  
 RN 9004-35-7 HCA  
 CN Cellulose, acetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CME Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CME C2 H4 O2



RN 9012-09-3 HCA  
 CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CME Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CME C2 H4 O2



IPCI G02B0005-30 [ICM,7]; G02F0001-13 [ICS,7]; G02F0001-13363 [ICS,7];  
 C09K0019-38 [ICS,7]  
 IPCR C09K0019-38 [N,A]; C09K0019-38 [N,C\*]; G02B0005-30 [I,A]; G02B0005-30  
 [I,C\*]; G02F0001-13 [I,A]; G02F0001-13 [I,C\*]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 73  
 ST liq crystal display polarizer compensation sheet; discotic liq  
 crystal optical compensation sheet; cholesteric liq crystal  
 optical compensation sheet  
 IT Liquid crystals  
 (cholesteric; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)  
 IT Liquid crystals  
 (discotic, polymeric; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)  
 IT Liquid crystal displays  
 Optical films  
 Polarizers  
 (liquid crystal display using optical compensation sheet having  
 discotic liq crystal and cholesteric liquid crystal anisotropic  
 layers)  
 IT 498-66-8D, Norbornene, derivative, polymer  
 (Arton, substrate; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)  
 IT 457053-13-3P, LC 242-LC 756 copolymer 838837-34-6P  
 (anisotropic layer; liquid crystal display using optical  
 compensation sheet having discotic liq crystal and  
 cholesteric liquid crystal anisotropic layers)  
 IT 66230-67-9, ZLI 1132  
 (liquid crystal; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal  
 anisotropic layers)  
 IT 82504-70-9  
 (retardation increasing agent; liquid crystal display using  
 optical compensation sheet having discotic liq crystal and  
 cholesteric liquid crystal anisotropic layers)  
 IT 9004-35-7 9012-09-3D, Fujitac TD 80U, saponified  
 (substrate; liquid crystal display using optical compensation  
 sheet having discotic liq crystal and cholesteric liquid crystal

anisotropic layers)

L43 ANSWER 16 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 141:386532 HCA Full-text  
 TITLE: Elliptic polarizing plates and liquid crystal displays  
 with widened viewing angle  
 INVENTOR(S): Takahashi, Yuta  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004309596	A	20041104	JP 2003-99832	20030403
PRIORITY APPLN. INFO.:			JP 2003-99832	20030403

AB The plates comprise laminates of polarizers protected on one or both sides with transparent polymer films, the 1st optically anisotropic layers retarding  $\pi$  at 550 nm, the 2nd optically anisotropic layers retarding  $\pi/2$  at 550 nm, and the 3rd optically anisotropic layers of neg. retardation. The 1st layers have optic axis parallel to the layer surface and the 2nd layers comprise immobilized hybrid nematic liquid crystals. The 3rd layers satisfy retardation 30-250 nm larger than that of the said transparent polymer films. Also disclosed are the plates of similar structure to above, where the plates have no layers of the transparent polymer films but optically isotropic adhesive layers between the polarizers and the 1st optically anisotropic layers.

IT 498-66-8D, Norbornene, derivs., polymers  
 (Arton, optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 9002-89-5, PVA 117H  
 (iodine-adsorbed, polarizing films; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

RN 9002-89-5 HCA  
 CN Ethenol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5  
 CMF C2 H4 O



IT 9012-09-3, Triacetyl cellulose  
(optically anisotropic layers; elliptic polarizing plates  
having multiple optically anisotropic layers for liquid crystal  
displays)

RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



IT 180570-45-0P 756893-05-7P  
(optically anisotropic layers; elliptic polarizing plates  
having multiple optically anisotropic layers for liquid crystal  
displays)

RN 180570-45-0 HCA

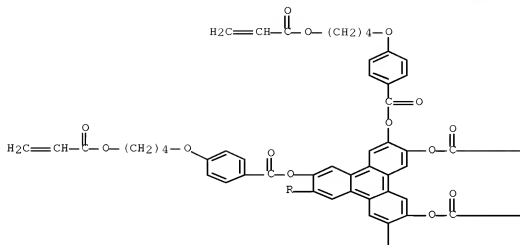
CN Benzoic acid, 4-[4-[(1-oxo-2-propen-1-yl)oxy]butoxy]-,  
2,3,6,7,10,11-triphenylenehexyl ester, mixt. with  
 $\alpha$ -hydro- $\omega$ -[(1-oxo-2-propen-1-yl)oxy]poly(oxy-1,2-ethanediyl)  
ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) (CA INDEX  
NAME)

CM 1

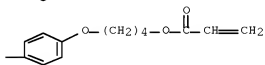
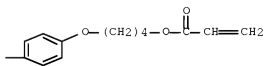
CRN 174079-42-6

CMF C102 H96 O30

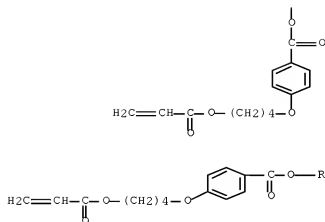
PAGE 1-A



PAGE 1-B



PAGE 2-A



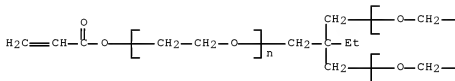
CM 2

CRN 28961-43-5

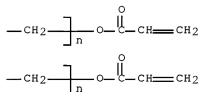
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C15 H20 O6

CCI PMS

PAGE 1-A



PAGE 1-B



RN 756893-05-7 HCA

CN Benzoic acid, 4-[[[4-[(1-oxo-2-propenyl)oxy]butoxy]carbonyl]oxy]-, 3-methyl-4-[[[4-[(1-oxo-2-propenyl)oxy]butoxy]carbonyl]oxy]phenyl ester, homopolymer (9CI) (CA INDEX NAME)

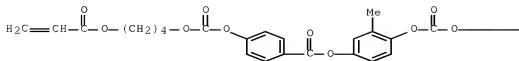
CM 1

CRN 756893-04-6

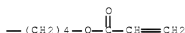


CMF C30 H32 O12

PAGE 1-A



PAGE 1-B



- IPCI G02B0005-30 [ICM,7]; G02F0001-13363 [ICS,7]; G02F0001-13 [ICS,7,C\*]  
 IPCR G02B0005-30 [I,A]; G02B0005-30 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-13363 [I,A]
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 73
- ST elliptic polarizing plate LCD viewing angle; discotic liq crystal polymer layer elliptic polarizer; triacetyl cellulose film laminated elliptic polarizer
- IT Polyethers, preparation  
 (acrylic-polyester-, polyoxyalkylene-, optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Polyesters, preparation  
 (acrylic-polyether-, polyoxyalkylene-, optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Acrylic polymers, uses  
 (adhesive layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Liquid crystal displays  
 (elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Polarizers  
 (elliptic, plates; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Liquid crystals  
 (optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Polyesters, preparation  
 (optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT Cycloalkenes  
 (polymers, optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)
- IT 498-66-8D, Norbornene, derivs., polymers

(Arton, optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

IT 9002-89-5, PVA 117H  
(iodine-adsorbed, polarizing films; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

IT 9012-09-3, Triacetyl cellulose  
(optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

IT 180570-45-QP 756893-05-7P  
(optically anisotropic layers; elliptic polarizing plates having multiple optically anisotropic layers for liquid crystal displays)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L43 ANSWER 17 OF 17 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 139:314617 HCA Full-text  
 TITLE: Saturated norbornene polymer films with excellent retardation uniformity and their manufacture  
 INVENTOR(S): Hashimoto, Narikazu  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003300241	A	20031021	JP 2002-107439	20020410

PRIORITY APPLN. INFO.: JP 2002-107439 20020410

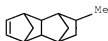
AB The films, useful for protective films for liquid crystal displays and organic EL displays, are manufactured by colliding saturated norbornene polymer pellets, kneading the surface-roughened pellets, and extruding them on drums. Thus, a cast film showing retardation fluctuation 0.3 nm and light transmittance 95.3% was manufactured from pellets of hydrogenated 6-methyl-1,4,5,8-dimethano-1,4,4a,5,6,7,8,8a-octahydronaphthalene homopolymer.

IT 26874-63-5DP, 6-Methyl-1,4:5,8-dimethano-1,4,4a,5,6,7,8,8a-octahydronaphthalene homopolymer, hydrogenated 376596-44-0DP, hydrogenated  
(manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)

RN 26874-63-5 HCA  
 CN 1,4:5,8-Dimethanonaphthalene, 1,2,3,4,4a,5,8,8a-octahydro-2-methyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 21681-47-0  
 CMF C13 H18



RN 376596-44-0 HCA  
 CN Poly[(octahydromethyl-4,7-methano-1H-indene-1,3-diyl)-1,2-ethenediyl] (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 498-66-8D, Norbornene, polymers, saturated  
 (manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)  
 RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IPCI B29C0047-10 [ICM,7]; C08J0005-18 [ICS,7]; G02B0005-30 [ICS,7]; B29K0045-00 [ICS,7]; B29L0007-00 [ICS,7]; C08L0065-00 [ICS,7]  
 IPCR G02B0005-30 [I,C\*]; G02B0005-30 [I,A]; B29C0047-10 [I,C\*]; B29C0047-10 [I,A]; B29K0045-00 [N,A]; B29L0007-00 [N,A]; C08J0005-18 [I,C\*]; C08J0005-18 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 ST satn norbornene polymer film EL display; retardation fluctuation redn polynorbornene film LCD; polynorbornene pellet surface roughening film transparency  
 IT Electroluminescent devices  
 (displays; manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)  
 IT Luminescent screens  
 (electroluminescent; manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)  
 IT Liquid crystal displays  
 Molding of plastics and rubbers  
 Optical films  
 Plastic films  
 Polarizers  
 (manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)  
 IT Polyalkenamers  
 (manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)  
 IT Optical instruments  
 (retarders; manufacture of saturated norbornene polymer films

for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)

IT 26874-63-5DP, 6-Methyl-1,4:5,8-dimethano-1,4,4a,5,6,7,8,8a-octahydronaphthalene homopolymer, hydrogenated 376596-44-0DP, hydrogenated  
(manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)

IT 498-66-8D, Norbornene, polymers, saturated  
(manufacture of saturated norbornene polymer films for displays with reduced retardation fluctuation by cast molding of surface-roughened pellets)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

=> D L45 1-34 IBIB ABS HITSTR HITIND RETABLE

L45 ANSWER 1 OF 34 HCA COPYRIGHT 2011 ACS ON STN  
ACCESSION NUMBER: 149:91653 HCA Full-text  
TITLE: Brightness enhancement films, their rolls  
for storage, and liquid crystal displays therewith  
INVENTOR(S): Hashimoto, Hiromasa; Haraguchi, Manabu; Kawabata, Koya  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2008151861	A	20080703	JP 2006-337192	20061214 <--
PRIORITY APPLN. INFO.:			JP 2006-337192	20061214 <--
AB	In the brightness enhancement films comprising transparent polymer films, alignment layers, selective reflection layers, and retardation layers in this order, the transparent polymer films have moisture permeability $\leq 1.5$ g/m <sup>2</sup> -24 h and water absorption $\leq 0.05\%$ (and comprise alicyclic resins such as norbornene polymers).			
IT	498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420 (brightness enhancement films, their rolls for storage, and liquid crystal displays therewith)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



RN 370857-78-6 HCA  
CN Zeonor 1420 (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IPC1 G02B0005-30 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]  
IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-1335

[1,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 ST brightness enhancement film norbornene polymer moisture permeability water absorption; storage stable brightness enhancement film roll LCD  
 IT Liquid crystal displays  
 (brightness enhancement films, their rolls for storage, and liquid crystal displays therewith)  
 IT Optical films  
 (brightness enhancement; brightness enhancement films, their rolls for storage, and liquid crystal displays therewith)  
 IT Optical instruments  
 (retarders; brightness enhancement films, their rolls for storage, and liquid crystal displays therewith)  
 IT 498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420  
 (brightness enhancement films, their rolls for storage, and liquid crystal displays therewith)

L45 ANSWER 2 OF 34 HCA COPYRIGHT 2011 ACS ON STN  
 ACCESSION NUMBER: 148:526712 HCA Full-text  
 TITLE: Long transparent stretched norbornene polymer optical retardation films, their manufacture, laminated films with them, their polarizing plates, and liquid crystal displays with them  
 INVENTOR(S): Yamanaka, Shunsuke  
 PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 20pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008110573	A	20080515	JP 2006-296174	20061031 <--
PRIORITY APPLN. INFO.:			JP 2006-296174	20061031 <--

AB The invention relates to title films with average orientation angle  $0$  to  $10-80^\circ$  and average Nz coefficient  $1.5-30$  and in the  $\geq 1300$  mm-wide transverse directions (TD) difference in  $0 \leq 1.0^\circ$  and difference in Nz coefficient  $\leq 0.10$ . The polarizing plates are useful for vertically aligned (VA)- or optically compensatory bend (OCB)-mode liquid crystal displays. The manufacturing method includes the 1st stretching of the transparent films to show average orientation angle to TD (01)  $5-75^\circ$  and simultaneously biaxial stretching to show average orientation angle to TD (02)  $10-80^\circ$ . The two-stage oblique and simultaneously biaxially stretched films show uniform orientation angle and Nz coefficient, giving displays showing wide view angle and uniform color.

IT 498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420  
 (transparent stretched norbornene polymer films for liquid crystal display polarizing plates)

RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 370857-78-6 HCA  
 CN Zeonor 1420 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI B29C0055-02 [I,A]; G02B0005-30 [I,A]; C08J0005-18 [I,A]  
 IPCR B29C0055-02 [I,C]; B29C0055-02 [I,A]; B29L0007-00 [N,A]; C08J0005-18 [I,C]; C08J0005-18 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST stretched norbornene polymer film polarizing plate; vertically aligned liq crystal display polynorbornene; optically compensatory bend LCD polynorbornene retarder; transparency cycloolefin polymer film multistep stretching; wide view angle liq crystal display; uniform color optical retardation film polynorbornene  
 IT Optical instruments  
     (retarders; transparent stretched norbornene polymer films for liquid crystal display polarizing plates)  
 IT Laminated materials  
     Liquid crystal displays  
     Plastic films  
     Polarizers  
         Transparent films  
             (transparent stretched norbornene polymer films for liquid crystal display polarizing plates)  
 IT 498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420  
     (transparent stretched norbornene polymer films for liquid crystal display polarizing plates)

L45 ANSWER 3 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 148:482976 HCA Full-text  
 TITLE: Neutral density (ND) filters and aperture devices  
 INVENTOR(S): Kunii, Hirotake  
 PATENT ASSIGNEE(S): Nidec Copal Corporation, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 10pp.  
             CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008102363	A	20080501	JP 2006-285466	20061019 <--
PRIORITY APPLN. INFO.:			JP 2006-285466	20061019 <--
AB	The title filter comprises equipped with a light-absorbing layer and a dielec. layer laminated on an amorphous transparent substrate made of polymers having acyclic main chains formed from norbornene monomers, transmits at least visible light, has haze ≤1%, and has retardation ≤20 nm. Aperture devices including the given filter are also claimed.			
IT	542-92-7D, 1,3-Cyclopentadiene, polymers with olefins (Zeonor, support film; Neutral d. (ND) filters and aperture			

devices)  
RN 542-92-7 HCA  
CN 1,3-Cyclopentadiene (CA INDEX NAME)



IT 1306-38-3, Ceria, uses 1344-28-1, Alumina, uses  
7631-86-9, Silica, uses 7783-40-6, Magnesium fluoride  
13463-67-7, Titania, uses  
(dielec. layer; Neutral d. (ND) filters and aperture devices)  
RN 1306-38-3 HCA  
CN Cerium oxide (CeO2) (CA INDEX NAME)



RN 1344-28-1 HCA  
CN Aluminum oxide (Al2O3) (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
RN 7631-86-9 HCA  
CN Silica (CA INDEX NAME)



RN 7783-40-6 HCA  
CN Magnesium fluoride (MgF2) (CA INDEX NAME)



RN 13463-67-7 HCA  
CN Titanium oxide (TiO2) (CA INDEX NAME)



IT 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses  
7440-47-3, Chromium, uses 11105-45-6 11148-32-6  
12683-48-6  
(light-absorbing layer; Neutral d. (ND) filters and aperture  
devices)  
RN 7440-02-0 HCA  
CN Nickel (CA INDEX NAME)

RN 7440-32-6 HCA  
CN Titanium (CA INDEX NAME)

Ti

RN 7440-47-3 HCA  
CN Chromium (CA INDEX NAME)

Cr

RN 11105-45-6 HCA  
CN Chromium alloy, nonbase, Cr,Ni (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0

RN 11148-32-6 HCA  
CN Iron alloy, nonbase, Fe,Ni (CA INDEX NAME)

Component	Component Registry Number
Fe	7439-89-6
Ni	7440-02-0

RN 12683-48-6 HCA  
CN Nickel alloy, nonbase, Ni,Ti (CA INDEX NAME)

Component	Component Registry Number
Ni	7440-02-0
Ti	7440-32-6

IT 498-66-8D, Norbornene, derivs., polymers  
(support film; Neutral d. (ND) filters and aperture devices)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)





IPCI G02B0005-00 [I,A]; C23C0014-06 [N,A]  
 IPCR G02B0005-00 [I,C]; G02B0005-00 [I,A]; C23C0014-06 [N,C]; C23C0014-06 [N,A]  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 IT Cycloalkenes  
 (polymers, support film; Neutral d. (ND) filters and aperture devices)  
 IT 542-92-7D, 1,3-Cyclopentadiene, polymers with olefins  
 (Zeonor, support film; Neutral d. (ND) filters and aperture devices)  
 IT 1306-38-3, Ceria, uses 1344-28-1, Alumina, uses 7631-86-3, Silica, uses 7783-40-6, Magnesium fluoride 13463-67-7, Titania, uses  
 (dielec. layer; Neutral d. (ND) filters and aperture devices)  
 IT 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 1105-45-6 11148-32-6 12683-48-6  
 (light-absorbing layer; Neutral d. (ND) filters and aperture devices)  
 IT 498-66-8D, Norbornene, derivs., polymers  
 (support film; Neutral d. (ND) filters and aperture devices)

L45 ANSWER 4 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 148:391097 HCA Full-text

TITLE: Composite retardation films, method for their manufacture, composite optical instruments, and liquid crystal displays

INVENTOR(S): Kunai, Yuichiro; Matsuoka, Yoshiki

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15pp.

CODEN: JKXXAF

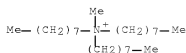
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008076816	A	20080403	JP 2006-256921	20060922 <--
PRIORITY APPLN. INFO.:			JP 2006-256921	20060922 <--
AB	<p>The title film comprises (A) a transparent retardation sheet, (B) a primer layer, formed by removal of the solvent from an aqueous composition containing water-soluble polymers and water-dispersible polyisocyanate curing agent, and (C) a retardation coating containing organic clay composites and binder polymers. The films are manufactured by application of the primer composition on a transparent retardation sheet, removal of water-based solvent from the coating, application of the retardation coating composition, and removal of solvent from the coating. Composite optical instrument comprising laminates of the said films and optical functional layers and liquid crystal displays with the instruments are also claimed.</p>			
IT	<p>22061-11-6D, Trioctylmethylammonium, salts, composite with hectorite          (in retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)</p>			
RN	22061-11-6 HCA			
CN	1-Octanaminium, N-methyl-N,N-dioctyl- (CA INDEX NAME)			



IT 1014694-59-7P  
(primer layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)

RN 1014694-59-7 HCA

CN Burnock DNW 5000, polymer with PVA 403 (CA INDEX NAME)

CM 1

CRN 609799-51-1

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 151821-28-2

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 202149-45-9, Lucentite STN 543732-89-4, SBU Lacquer 0866  
(retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)

RN 202149-45-9 HCA

CN Lucentite STN (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 543732-89-4 HCA

CN SBU Lacquer 0866 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 12173-47-6D, Hectorite, trioctylmethylammonium-treated  
(synthetic, in retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)

RN 12173-47-6 HCA

CN Hectorite ((Mg<sub>2</sub>.67Li<sub>0.33</sub>)Si<sub>4</sub>Na<sub>0.33</sub>[F<sub>0.5</sub>-1(OH)<sub>0-0.5</sub>](2010) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 498-66-8D, Norbornene, polymers 1014975-74-6, CSES  
430120Z-S-KY  
(transparent retardation film; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 1014975-74-6 HCA  
CN CSES 430120Z-S-KY (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IPCI G02B0005-30 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]; B32B0027-26 [I,A]; B32B0027-30 [I,A]  
IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; B32B0027-26 [I,C]; B32B0027-26 [I,A]; B32B0027-30 [I,C]; B32B0027-30 [I,A]; G02F0001-13 [I,C]; G02F0001-13363 [I,A]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 73  
ST composite retardation film laminate  
structure; org clay composite optical retardation coating; polyisocyanate cured primer layer  
retardation film laminate  
IT Liquid crystal displays  
Optical instruments  
(manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT Laminated plastics, uses  
(manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT Polyurethanes, preparation  
(primer layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT Optical instruments  
(retarders; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT 22061-11-6D, Trioctylmethylammonium, salts, composite with hectorite  
(in retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT 1014694-59-7P  
(primer layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT 202149-45-9, Lucentite STN 543732-89-4, SBU Lacquer 0866  
(retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT 12173-47-6D, Hectorite, trioctylmethylammonium-treated  
(synthetic, in retardation coating layer; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)  
IT 498-66-8D, Norbornene, polymers 1014975-74-6, CSES 430120Z-S-KY  
(transparent retardation film; manufacture of laminate-structured retardation films containing organic clay composite layers for liquid crystal displays)

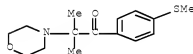
ACCESSION NUMBER: 148:272624 HCA Full-text  
 TITLE: Composition for optical functional layer and its manufacturing method  
 INVENTOR(S): Inomata, Hiroya; Harigaya, Takeshi  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 22pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008039931	A	20080221	JP 2006-211228	20060802 <--
PRIORITY APPLN. INFO.:			JP 2006-211228	20060802 <--

AB The invention relates to a composition for an optical functional layer, suited for use in making an optical retardation film on a cycloolefin-based transparent substrate, comprising rod-like mols. having an anisotropic refractive index, diacetone alc., and a ketone-based solvent.  
 IT 498-66-8D, Norbornene, derivs., polymers  
 (Arton; composition for optical functional layer)  
 RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 71868-10-5, Irgacure 907  
 (composition for optical functional layer)  
 RN 71868-10-5 HCA  
 CN 1-Propanone, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)- (CA INDEX NAME)

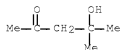


IT 108-94-1, Cyclohexanone, uses 123-42-2, Diacetone alcohol  
 (composition for optical functional layer)  
 RN 108-94-1 HCA  
 CN Cyclohexanone (CA INDEX NAME)



RN 123-42-2 HCA

CN 2-Pentanone, 4-hydroxy-4-methyl- (CA INDEX NAME)



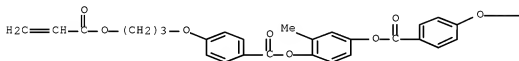
IT 174063-87-7

(composition for optical functional layer)

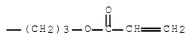
RN 174063-87-7 HCA

CN Benzoic acid, 4-[3-[(1-oxo-2-propen-1-yl)oxy]propoxy]-, 1,1'-(2-methyl-1,4-phenylene) ester (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IPCI G02B0005-30 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]

IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-13363 [I,A]

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

ST optical retardation film compn manuf

IT Optical films

(composition for optical functional layer)

IT Liquid crystal displays

(retardation film; composition for optical functional layer)

IT 498-66-8D, Norbornene, derivs., polymers

(Arton; composition for optical functional layer)

IT 71868-10-5, Irgacure 907

(composition for optical functional layer)

IT 108-94-1, Cyclohexanone, uses 123-42-2, Diacetone alcohol

(composition for optical functional layer)

IT 174063-87-7

(composition for optical functional layer)

L45 ANSWER 6 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 148:89252 HCA Full-text  
 TITLE: Optical films, their manufacture,  
 polarization sheets, liquid-crystal cells,  
 liquid-crystal displays, and display devices  
 INVENTOR(S): Shimizu, Akira; Miyazaki, Junzo; Kitakawa, Joji;  
 Asanaga, Masatoshi; Murakami, Naho  
 PATENT ASSIGNEE(S): Nitto Denko Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 40pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007331368	A	20071227	JP 2006-259269	20060925 <--
PRIORITY APPLN. INFO.:			JP 2006-136224	A 20060516 <--
AB	In the films obtained by (1) laminating adhesion layers of polyurethane solns. and birefringence layers of non-liquid-crystalline polymers on transparent polymer film layers and (2) drawing the resulting laminated films, the polyurethane solns. comprise organic solvent-soluble polyurethanes 3-7, MEK 30-50, toluene 15-50, and cyclohexanone 2-5 weight%. The polarization sheets have the films and polarizers. Liquid-crystal cells and the display devices containing the films or the polarization sheets are also claimed. The liquid-crystal displays contain the liquid-crystal cells. The films show good interlayer adhesion and uniform retardation of the birefringence layers.			
IT	498-66-8D, Norbornene, derivs., polymers (Arton, supports; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



IT 97621-76-6, Vondic 1510 120478-69-5, Superflex E 2000  
 127475-73-4, Vylon UR 8200 132893-86-8, Hydran APX 101H  
 133516-65-1, Adeka Bon-Tighter HUX 232 147230-24-8,  
 Vylon UR 2300 157351-99-0, Superflex 410 168679-44-5,  
 Vondic 1320NS 169277-30-9, Vylon UR 3200 173859-25-1,  
 Vylon UR 1400 175832-28-7, Adeka Bon-Tighter HUX 320  
 184049-29-4, Spensol L 512 191114-15-5, Superflex 460  
 258268-19-8, Superflex 130 324743-24-0, Superflex 420  
 392315-60-5, Superflex 600 459428-20-7, Vondic 1310NSA  
 586971-17-7, Vylon UR 3210 642070-60-8, Hydran HW 980  
 887750-59-6, Adeka Bon-Tighter HUX 522 887750-60-9,  
 Adeka Bon-Tighter HUX 523 887750-66-5, Vondic 1250  
 (adhesion layers; manufacture of optical films having  
 polyurethane adhesion layers for polarization sheets  
 of displays)  
 RN 97621-76-6 HCA  
 CN Vondic 1510 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 120478-69-5 HCA

CN Superflex E 2000 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

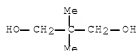
RN 127475-73-4 HCA

CN 1,3-Benzenedicarboxylic acid, polymer with 1,4-benzenedicarboxylic acid,  
2,2-dimethyl-1,3-propanediol and 1,1'-methylenebis[4-isocyanatobenzene]  
(CA INDEX NAME)

CM 1

CRN 126-30-7

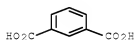
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CM 2

CRN 121-91-5

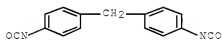
CMF C8 H6 O4



CM 3

CRN 101-68-8

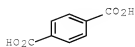
CMF C15 H10 N2 O2



CM 4

CRN 100-21-0

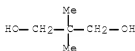
CMF C8 H6 O4



RN 132893-86-8 HCA  
 CN Hydran APX 101H (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 133516-65-1 HCA  
 CN Adeka Bon-Tighter HUX 232 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 147230-24-8 HCA  
 CN Vylon UR 2300 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 157351-99-0 HCA  
 CN Superflex 410 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 168679-44-5 HCA  
 CN Vondic 1320NS (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 169277-30-9 HCA  
 CN Vylon UR 3200 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 173859-25-1 HCA  
 CN 1,3-Benzenedicarboxylic acid, polymer with 2,2-dimethyl-1,3-propanediol,  
 1,2-ethanediol and 1,1'-methylenebis[4-isocyanatobenzene] (CA INDEX NAME)

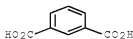
CM 1

CRN 126-30-7  
 CMF C5 H12 O2



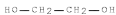
CM 2

CRN 121-91-5  
 CMF C8 H6 O4



CM 3

CRN 107-21-1  
 CMF C2 H6 O2

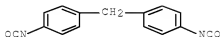




CM 4

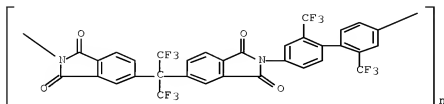
CRN 101-68-8

CMF C15 H10 N2 O2



RN 175832-28-7 HCA  
 CN Adeka Bon-Tighter HUX 320 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 184049-29-4 HCA  
 CN Spensol L 512 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 191114-15-5 HCA  
 CN Superflex 460 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 258268-19-8 HCA  
 CN Superflex 130 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 324743-24-0 HCA  
 CN Superflex 420 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 392315-60-5 HCA  
 CN Superflex 600 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 459428-20-7 HCA  
 CN Vondic 1310NSA (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 586971-17-7 HCA  
 CN Vylon UR 3210 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 642070-60-8 HCA  
 CN Hydran HW 980 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 887750-59-6 HCA  
 CN Adeka Bon-Tighter HUX 522 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 887750-60-9 HCA  
 CN Adeka Bon-Tighter HUX 523 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 887750-66-5 HCA  
 CN Vondic 1250 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 129219-42-7P 154067-88-6P,  
 2,2'-Bis(3,4-dicarboxyphenyl)hexafluoropropane-2,2'-bis(trifluoromethyl)-  
 4,4'-diaminobiphenyl copolymer  
 (birefringence layers; manufacture of optical films  
 having polyurethane adhesion layers for polarization  
 sheets of displays)  
 RN 129219-42-7 HCA  
 CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-

diyl [2,2'-bis(trifluoromethyl) [1,1'-biphenyl]-4,4'-diyl]] (CA INDEX NAME)



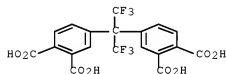
RN 154067-88-6 HCA

CN 1,2-Benzenedicarboxylic acid, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with 2,2'-bis(trifluoromethyl) [1,1'-biphenyl]-4,4'-diamine (CA INDEX NAME)

CM 1

CRN 3016-76-0

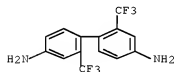
CMF C19 H10 F6 O8



CM 2

CRN 341-58-2

CMF C14 H10 F6 N2



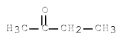
IT 108-10-1, Methyl isobutyl ketone  
(solvents for birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)

RN 108-10-1 HCA

CN 2-Pentanone, 4-methyl- (CA INDEX NAME)



IT 78-93-3, Methyl ethyl ketone, uses 108-88-3, Toluene,  
uses 108-94-1, Cyclohexanone, uses 141-78-6, Ethyl  
acetate, uses  
(solvents for polyurethanes; manufacture of optical films having  
polyurethane adhesion layers for polarization sheets  
of displays)  
RN 78-93-3 HCA  
CN 2-Butanone (CA INDEX NAME)



RN 108-88-3 HCA  
CN Benzene, methyl- (CA INDEX NAME)



RN 108-94-1 HCA  
CN Cyclohexanone (CA INDEX NAME)



RN 141-78-6 HCA  
CN Acetic acid ethyl ester (CA INDEX NAME)



IT 9012-09-3, Triacetyl cellulose  
(supports; manufacture of optical films having polyurethane  
adhesion layers for polarization sheets of  
displays)  
RN 9012-09-3 HCA  
CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



- IPCI B32B0027-40 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]; G02B0005-30 [I,A]
- IPCR B32B0027-40 [I,C]; B32B0027-40 [I,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-13363 [I,A]
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 73
- ST optical film polyurethane adhesion layer solvent;  
transparent film polyurethane adhesion layer  
solvent; birefringence layer retardation optical  
film display; liq crystal display optical film adhesion;  
polarizer optical film polyurethane adhesion layer
- IT Polyurethanes  
(adhesion layers; manufacture of optical films having  
polyurethane adhesion layers for polarization sheets  
of displays)
- IT Polyamides  
Polyesters  
(birefringence layers; manufacture of optical films  
having polyurethane adhesion layers for polarization  
sheets of displays)
- IT Polyimides  
(fluorine-containing, birefringence layers; manufacture of optical  
films having polyurethane adhesion layers for  
polarization sheets of displays)
- IT Laminated plastic films  
Liquid crystal displays  
Optical imaging devices  
Polarizers  
Transparent films  
(manufacture of optical films having polyurethane adhesion  
layers for polarization sheets of displays)
- IT Polyimides  
(polyamide-, birefringence layers; manufacture of optical  
films having polyurethane adhesion layers for  
polarization sheets of displays)
- IT Polyurethanes  
(polycarbonate-, adhesion layers; manufacture of optical  
films having polyurethane adhesion layers for  
polarization sheets of displays)
- IT Polyurethanes  
(polyester-, adhesion layers; manufacture of optical films  
having polyurethane adhesion layers for polarization  
sheets of displays)
- IT Polyimides  
(polyester-, birefringence layers; manufacture of optical  
films having polyurethane adhesion layers for  
polarization sheets of displays)
- IT Polyurethanes

- (polyether-, adhesion layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Polyketones  
(polyether-, birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Fluoropolymers  
(polyimide-, birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Polyamides
- Polyesters  
(polyimide-, birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Polyethers  
(polyketone-, birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Polycarbonates  
(polyurethane-, adhesion layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT Polyalkenamers  
(supports; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT 498-66-8D, Norbornene, derivs., polymers  
(Arton, supports; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT 97621-76-6, Vondic 1510 120478-69-5, Superflex E 2000 127475-73-4, Vylon UR 8200 132893-86-8, Hydran APX 101H 133516-65-1, Adeka Bon-Tighter HUX 232 147230-24-8, Vylon UR 2300 157351-99-0, Superflex 410 168679-44-5, Vondic 1320NS 169277-30-9, Vylon UR 3200 173859-25-1, Vylon UR 1400 175832-28-7, Adeka Bon-Tighter HUX 320 184049-29-4, Spensol L 512 191114-15-5, Superflex 460 258268-19-8, Superflex 130 324743-24-0, Superflex 420 392315-60-5, Superflex 600 459428-20-7, Vondic 1310NSA 586971-17-7, Vylon UR 3210 642070-60-8, Hydran HW 980 887750-59-6, Adeka Bon-Tighter HUX 522 887750-60-9, Adeka Bon-Tighter HUX 523 887750-66-5, Vondic 1250 (adhesion layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT 129219-42-7P 154067-88-6P, 2,2'-Bis(3,4-dicarboxyphenyl)hexafluoropropane-2,2'-bis(trifluoromethyl)-4,4'-diaminobiphenyl copolymer  
(birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT 108-10-1, Methyl isobutyl ketone  
(solvents for birefringence layers; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)
- IT 78-93-3, Methyl ethyl ketone, uses 108-88-3, Toluene, uses 108-94-1, Cyclohexanone, uses 141-78-6, Ethyl acetate, uses

(solvents for polyurethanes; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)

IT 9012-09-3, Triacetyl cellulose  
(supports; manufacture of optical films having polyurethane adhesion layers for polarization sheets of displays)

L45 ANSWER 7 OF 34 HCA COPYRIGHT 2011 ACS ON STN

ACCESSION NUMBER: 147:436586 HCA Full-text

TITLE: Cycloolefin resin-based tack films, their manufacture, and retarder films forming liquid crystalline layers on the former

INVENTOR(S): Sekine, Keiko; Kiyohara, Yoshiko; Nakamura, Runa; Inomata, Hiroya

PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 39pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007268996	A	20071018	JP 2006-101124	20060331 <--
PRIORITY APPLN. INFO.:			JP 2006-101124	20060331 <--
AB	The title films comprise cycloolefin resin-based transparent substrates forming layers formed from monomers having $\geq 1$ polymerizable group chosen from OOCRI:CH <sub>2</sub> , OCH:CH <sub>2</sub> , Q1, Q2, and/or Q3 (R1-R3 = H, Me; R4 = H, Me, Et) and satisfying N/M $\geq 3$ (N = constituent C number; M = number of constituting elements other than H and C). The retarder films exhibit excellent adhesion of the tack films to liquid crystal-based retarder layers and less change in dimension or optical function by water absorption.			
IT	498-66-8D, Norbornene, polymers 150872-17-6, Arton (substrates; manufacture of cycloolefin resin substrate-employed optical films with good adhesion to liquid crystalline retarder layers for LCD)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



RN 150872-17-6 HCA

CN Arton (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 502-44-3DP, Caprolactone, reaction products with urethane acrylate, polymer with nonanediol diacrylate 57592-67-3P, 1,6-Hexanediol diacrylate homopolymer 71512-49-7P 107481-28-7DP, 1,9-Nonanediol diacrylate, polymers with caprolactone-modified urethane acrylate 591778-38-0P  
(tack layers; manufacture of cycloolefin resin substrate-employed

optical films with good adhesion to liquid crystalline  
retarder layers for LCD)

RN 502-44-3 HCA

CN 2-Oxepanone (CA INDEX NAME)



RN 57592-67-3 HCA

CN 2-Propenoic acid, 1,1'-(1,6-hexanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 13048-33-4

CMF C12 H18 O4



RN 71512-49-7 HCA

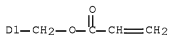
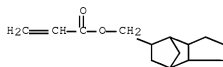
CN 2-Propenoic acid, 1,1'-[(octahydro-4,7-methano-1H-indene-5,2-diyl)bis(methylene)] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 42594-17-2

CMF C18 H24 O4

CCI IDS



RN 107481-28-7 HCA

CN 2-Propenoic acid, 1,1'-(1,9-nonanediyl) ester (CA INDEX NAME)



RN 591778-38-0 HCA

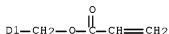
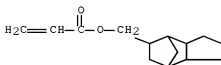
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[[(1-oxo-2-propen-1-yl)oxylmethyl]-1,3-propanediyl] ester, polymer with 1,1'-[(octahydro-4,7-methano-1H-indene-5,2-diyl)bis(methylene)] di-2-propenoate (CA INDEX NAME)

CM 1

CRN 42594-17-2

CMF C18 H24 O4

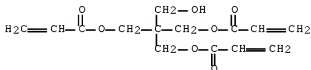
CCI IDS



CM 2

CRN 3524-68-3

CMF C14 H18 O7



IPCI B32B0027-00 [I,A]; G02B0005-30 [I,A]; B32B0027-30 [I,A]; B32B0027-38 [I,A]  
 IPCR B32B0027-00 [I,C]; B32B0027-00 [I,A]; B32B0027-30 [I,C]; B32B0027-30 [I,A]; B32B0027-38 [I,C]; B32B0027-38 [I,A]; G02B0005-30 [I,C];  
 G02B0005-30 [I,A]

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

ST cycloolefin resin optical retarder film interlayer  
 adhesion; monomer carbon number regulated tack coating  
 retarder substrate; LCD retarder dimensional optical  
 stability cycloolefin resin

IT Laminated plastic films  
 (manufacture of cycloolefin resin substrate-employed optical films  
 with good adhesion to liquid crystalline retarder layers  
 for LCD)

IT Cycloalkenes  
 (polymers, substrates; manufacture of cycloolefin resin substrate-employed  
 optical films with good adhesion to liquid crystalline  
 retarder layers for LCD)

IT Liquid crystals, polymeric  
 (retarder layers; manufacture of cycloolefin resin



- substrate-employed optical films with good adhesion to liquid crystalline retarder layers for LCD)
- IT Optical instruments  
(retarders; manufacture of cycloolefin resin substrate-employed optical films with good adhesion to liquid crystalline retarder layers for LCD)
- IT 498-66-8D, Norbornene, polymers 150872-17-6, Arton  
(substrates; manufacture of cycloolefin resin substrate-employed optical films with good adhesion to liquid crystalline retarder layers for LCD)
- IT 502-44-3DP, Caprolactone, reaction products with urethane acrylate, polymer with nonanediol diacrylate 57592-67-3P, 1,6-Hexanediol diacrylate homopolymer 71512-49-7P, 107481-28-7DP, 1,9-Nonanediol diacrylate, polymers with caprolactone-modified urethane acrylate 591778-38-0P  
(tack layers; manufacture of cycloolefin resin substrate-employed optical films with good adhesion to liquid crystalline retarder layers for LCD)

L45 ANSWER 8 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 147:395294 HCA Full-text  
 TITLE: Method for fabricating optical compensation films for polarizing plates  
 INVENTOR(S): Hung, Wei-Tze; Chang, Ching-Sen; Wu, Lung-Hai  
 PATENT ASSIGNEE(S): Optimax Technology Corp., Taiwan  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 24pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 101025455	A	20070829	CN 2006-10007840	20060217 <--
PRIORITY APPLN. INFO.:			CN 2006-10007840	20060217 <--

- AB The optical compensation films are prepared by (1) coating an optical compensation layer containing polyurethane or polyester oligomer on a transparent substrate, (2) applying photoinitiator (0.5-10% of the optical compensation layer), and irradiating the optical compensation layer with UV in the presence of  $\geq 1\%$  oxygen while retaining partial unreacted active groups, (3) coating optical retarding material, and (4) irradiating the optical compensation layer and optical retarding material with UV for bonding. Polarizing plates having the optical compensation films can improve viewing angles of liquid crystal displays.
- IT 9004-48-2, Cellulose propionate 9012-09-3  
(fabrication of optical compensation films for polarizing plates for liquid crystal displays)
- RN 9004-48-2 HCA
- CN Cellulose, propanoate (CA INDEX NAME)

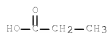
CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4  
CMF C3 H6 O2



RN 9012-09-3 HCA  
CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
CMF C2 H4 O2



IPCI G02B0005-30 [I,A]; G02B0001-10 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]  
IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02B0001-10 [I,C]; G02B0001-10 [I,A]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST optical compensation film polarizing plate liq crystal display  
IT Polyesters  
(acrylate-terminated; fabrication of optical compensation films for polarizing plates for liquid crystal displays)  
IT Polyurethanes  
(acrylates; fabrication of optical compensation films for polarizing plates for liquid crystal displays)  
IT Liquid crystal displays  
(fabrication of optical compensation films for polarizing plates for liquid crystal displays)  
IT Optical instruments  
(retarders; fabrication of optical compensation films for polarizing plates for liquid crystal displays)  
IT 9004-48-2, Cellulose propionate 9012-09-3  
(fabrication of optical compensation films for polarizing plates for liquid crystal displays)

L45 ANSWER 9 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 147:200253 HCA Full-text

TITLE: Large-sized polarizer, its manufacture, and its LCD

INVENTOR(S): Yakabe, Kimihiko; Kakutani, Hidenori

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.

CODEN: JKXXXF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007187718	A	20070726	JP 2006-3464	20060111 <--
PRIORITY APPLN. INFO.:			JP 2006-3464	20060111 <--

AB The polarizer is composed of  $\geq 2$  sheets of unit polarizers joined together at the edges and a pair of transparent protective films covering the both sides of the joined polarizers. Preferably, the transparent protective films comprise cellulosic resins and cyclic olefin polymers. Preferably, one of the transparent protective films functions as a retarder. Preferably, a light-diffusing pressure-sensitive layer is provided outside the transparent protective films. The large-sized polarizer is manufactured by bonding  $\geq 2$  sheets of unit polarizers bearing easy-release films on one side on a 1st transparent protective sheet in such a way that the edges are in contact with each other, and bonding a 2nd transparent protective film on the release film-peeled surface. The joint of the polarizers is unnoticeable on the screen.

IT 9012-09-3, Triacetyl cellulose  
 (easy peel film; manufacture of large-sized joined polarizer and its LCD)

RN 9012-09-3 HCA  
 CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CMF C2 H4 O2



IT 9002-89-5, Poly(vinyl alcohol)  
 (iodine-doped polarizer; manufacture of large-sized joined polarizer and its LCD)

RN 9002-89-5 HCA  
 CN Ethanol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5  
 CMF C2 H4 O



IT 498-66-8D, Norbornene, polymers 9012-09-3D, Triacetyl  
cellulose, saponified  
(transparent protection film; manufacture of large-sized  
joined polarizer and its LCD)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9012-09-3 HCA  
CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
CMF C2 H4 O2



IPCI G02B0005-30 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]; G02B0005-02 [I,A]  
IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02B0005-02 [I,C]; G02B0005-02 [I,A]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST liq crystal display joined polarizer large size; transparent protection film joined polarizer  
IT Optical instruments  
(diffusers, fine particle-dispersing pressure-sensitive adhesive layer; manufacture of large-sized joined polarizer and its LCD)  
IT Cycloalkenes  
(polymers, transparent protection film; manufacture of large-sized joined polarizer and its LCD)  
IT Optical instruments  
(retarders, transparent protective films as; manufacture of large-sized joined polarizer and its LCD)  
IT 9012-09-3, Triacetyl cellulose  
(easy peel film; manufacture of large-sized joined polarizer and its LCD)  
IT 9002-89-5, Poly(vinyl alcohol)

(iodine-doped polarizer; manufacture of large-sized joined polarizer and its  
LCD)  
IT 498-66-8D, Norbornene, polymers 9012-69-3D, Triacetyl  
cellulose, saponified  
(transparent protection film; manufacture of large-sized  
joined polarizer and its LCD)

L45 ANSWER 10 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 147:83007 HCA Full-text  
TITLE: Longitudinal oriented films of  
transparent resins, their manufacture, and  
their use for optical retardation  
films, multilayer films, polarizing  
plates, and liquid crystal displays  
Sugihara, Motoki; Asada, Takeshi  
INVENTOR(S):  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007153926	A	20070621	JP 2005-347066	20051130 <--
PRIORITY APPLN. INFO.:			JP 2005-347066	20051130 <--

AB The transparent longitudinal oriented plastic films have an in-plane slow axis in the direction inclined 1-30° relative to the width direction of the oriented films, the coefficient  $N_z = (n_x - n_z)/(n_x - n_y) = 1.0-1.3$  as the average value over 1300-mm width ( $n_x$ ,  $n_y$ , and  $n_z$  are the refractive indexes at 550 nm in the slow-axis direction, in the direction perpendicular to the slow-axis direction, and in the thickness direction, resp.), the slow-axis angle accuracy within  $\pm 0.5^\circ$ ,  $N_z$  accuracy within  $\pm 0.1$ , and thickness accuracy within  $\pm 1 \mu\text{m}$ . The oriented films are manufactured by extracting transparent long resin films from a roll, holding both ends in the width direction of the films, stretching the films, releasing the both ends of the stretched films having a slow axis in the direction inclined at an angle of  $\theta_s$  relative to the width direction, and winding the films around a winding roll, wherein the  $\theta_1$  (angle between the film-extracting direction and the film-winding direction) and  $\theta_s$  satisfy the following relations: and  $1^\circ \leq \theta_s < \theta_1 \leq 30^\circ$  and  $\theta_s < \theta_1 - 3^\circ$ . The oriented films having large areas and high accuracy, suitable for optical retardation films, multilayer films, polarizing plates, and liquid crystal displays, can be manufactured at a low cost.

IT 498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420  
(manufacture of longitudinal oriented films of transparent  
resins with high accuracy for optical retardation  
films, multilayer films, polarizing plates, and liquid  
crystal displays)

RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 370857-78-6 HCA  
 CN Zeonor 1420 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI C08J0005-18 [I,A]; G02B0005-30 [I,A]; B29C0055-02 [I,A]; G02F0001-13363 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]  
 IPCR C08J0005-18 [I,C]; C08J0005-18 [I,A]; B29C0055-02 [I,C]; B29C0055-02 [I,A]; B29L0011-00 [N,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 ST transparent resin oriented film optical retardation; polarizer liq crystal display plastic film  
 IT Laminated plastic films  
 Liquid crystal displays  
 Plastic films  
 Polarizers  
 Transparent films  
 (manufacture of longitudinal oriented films of transparent resins with high accuracy for optical retardation films, multilayer films, polarizing plates, and liquid crystal displays)  
 IT Optical instruments  
 (retarders; manufacture of longitudinal oriented films of transparent resins with high accuracy for optical retardation films, multilayer films, polarizing plates, and liquid crystal displays)  
 IT 498-66-8D, Norbornene, polymers 370857-78-6, Zeonor 1420  
 (manufacture of longitudinal oriented films of transparent resins with high accuracy for optical retardation films, multilayer films, polarizing plates, and liquid crystal displays)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)  
 L45 ANSWER 11 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 146:131871 HCA Full-text  
 TITLE: Transmissive IPC-mode liquid crystal display having polarizing plate laminated with protective film of low retardation in thickness direction  
 INVENTOR(S): Shimizu, Kunio; Oka, Shigeki; Tatebe, Takashi  
 PATENT ASSIGNEE(S): Konica Minolta Opto Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 48pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007003917	A	20070111	JP 2005-185298	20050624 <--
PRIORITY APPLN. INFO.:			JP 2005-185298	20050624 <--
AB	In the display, a liquid crystal cell has, on one side, a polarizing plate (A1) sandwiched between a pair of transparent protective films, and on the other side, the same sandwiched plate (A2) via a retarder film. The protective film on cell side in A2 has in-plane retardation Re 0-5 nm and			

retardation in thickness direction Rth -20-20 nm [Re = (nx - ny) + d; Rth = [(nx + ny)/2 - nz] + d; nx, ny, nz = refractive index in X (direction of the maximum in-plane refractive index), Y (direction perpendicular to X), and Z (thickness direction), resp.; d = thickness (nm)] and the retarder film has Nz 0-0.35 and Re 60-450 nm [Nz = (nx - nz)/(nx - ny)]. With these polarizing plates, high-contrast display is available.

IT 74-85-1D, Ethylene, reaction products with poly(vinyl alc.)  
 9092-89-5, Poly(vinyl alcohol) 9092-89-5D, Poly(vinyl  
 alcohol), ethylene-modified  
 (polarizer plates; transmissive IPC-mode LCD having polarizing plate  
 laminated with protective film of low  
 retardation in thickness direction)  
 RN 74-85-1 HCA  
 CN Ethene (CA INDEX NAME)



RN 9002-89-5 HCA  
 CN Ethanol, homopolymer (CA INDEX NAME)  
 CM 1  
 CRN 557-75-5  
 CMF C2 H4 O



RN 9002-89-5 HCA  
 CN Ethanol, homopolymer (CA INDEX NAME)  
 CM 1  
 CRN 557-75-5  
 CMF C2 H4 O



IT 498-66-8D, Norbornene, derivs., polymers  
 (saturated, thermoplastic; transmissive IPC-mode LCD having polarizing  
 plate laminated with protective film of low  
 retardation in thickness direction)  
 RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



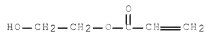
IT 9003-20-7, Vinyl acetate homopolymer 9003-21-8, Methyl  
acrylate homopolymer 27756-39-4, 2-Hydroxyethyl acrylate-methyl  
methacrylate copolymer  
(transparent protective films; transmissive  
IPC-mode LCD having polarizing plate laminated with  
protective film of low retardation in thickness  
direction)  
RN 9003-20-7 HCA  
CN Acetic acid ethenyl ester, homopolymer (CA INDEX NAME)  
CM 1  
CRN 108-05-4  
CMF C4 H6 O2



RN 9003-21-8 HCA  
CN 2-Propenoic acid, methyl ester, homopolymer (CA INDEX NAME)  
CM 1  
CRN 96-33-3  
CMF C4 H6 O2



RN 27756-39-4 HCA  
CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with 2-hydroxyethyl  
2-propenoate (CA INDEX NAME)  
CM 1  
CRN 818-61-1  
CMF C5 H8 O3



CM 2  
CRN 80-62-6  
CMF C5 H8 O2





IT 9012-09-3, Triacetylcellulose 291522-63-9, Zeonor 1600R  
 (transparent protective films; transmissive  
 IPC-mode LCD having polarizing plate laminated with  
 protective film of low retardation in thickness  
 direction)  
 RN 9012-09-3 HCA  
 CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CMF C2 H4 O2



RN 291522-63-9 HCA  
 CN Zeonor 1600R (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI G02F0001-1335 [I,A]; G02B0005-30 [I,A]; G02F0001-13363 [I,A]; G02F0001-13  
 [I,C\*]  
 IPCR G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G02B0005-30 [I,C]; G02B0005-30  
 [I,A]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 ST transmissive IPC liq crystal display polarizer protective film;  
 LCD polarizer protective transparent triacetylcellulose  
 film thickness retardation; liq crystal display contrast  
 retarder polarizer film  
 IT Optical films  
 (laminated; transmissive IPC-mode LCD having polarizing plate  
 laminated with protective film of low  
 retardation in thickness direction)  
 IT Polycarbonates, uses  
 (retarder films; transmissive IPC-mode LCD having  
 polarizing plate laminated with protective film of  
 low retardation in thickness direction)  
 IT Optical instruments  
 (retarders; transmissive IPC-mode LCD having polarizing plate  
 laminated with protective film of low  
 retardation in thickness direction)  
 IT Polarizers  
 (transmissive IPC-mode LCD having polarizing plate laminated

- with protective film of low retardation in thickness direction)
- IT Liquid crystal displays  
(transmissive; transmissive IPC-mode LCD having polarizing plate laminated with protective film of low retardation in thickness direction)
- IT 74-85-1D, Ethylene, reaction products with poly(vinyl alc.) 9002-89-5, Poly(vinyl alcohol) 9002-89-5D, Poly(vinyl alcohol), ethylene-modified  
(polarizer plates; transmissive IPC-mode LCD having polarizing plate laminated with protective film of low retardation in thickness direction)
- IT 498-66-8D, Norbornene, derivs., polymers  
(saturated, thermoplastic; transmissive IPC-mode LCD having polarizing plate laminated with protective film of low retardation in thickness direction)
- IT 9003-20-7, Vinyl acetate homopolymer 9003-21-8, Methyl acrylate homopolymer 27756-39-4, 2-Hydroxyethyl acrylate-methyl methacrylate copolymer  
(transparent protective films; transmissive IPC-mode LCD having polarizing plate laminated with protective film of low retardation in thickness direction)
- IT 9012-09-3, Triacetylcellulose 291522-63-9, Zeonor 1600R  
(transparent protective films; transmissive IPC-mode LCD having polarizing plate laminated with protective film of low retardation in thickness direction)

L45 ANSWER 12 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 145:407841 HCA Full-text  
 TITLE: Optical compensation plates and reflection type liquid crystal projectors  
 INVENTOR(S): Hayashi, Shigetoshi  
 PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006276353	A	20061012	JP 2005-94052	20050329 <--
CN 1841101	A	20061004	CN 2006-10071640	20060327 <--
PRIORITY APPLN. INFO.:			JP 2005-94052	A 20050329 <--

AB The plate consists of a transparent glass substrate equipped with laminates of optical compensation films having (a)  $\geq 80$  nm thickness-wise phase difference and (b) 550-nm reflection on the air-bearing side is  $\leq 2\%$ . Reflection type liquid crystal projectors equipped with the plates on the side opposite to the reflecting face of the liquid crystal cell are also claimed. High-quality images with high contrast are obtained.

IT 9004-34-6D, Cellulose, modified 911288-78-3, KC 10UBR  
(optical compensation film; optical compensation plates for reflection type liquid crystal projectors)

RN 9004-34-6 HCA  
 CN Cellulose (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 911288-78-3 HCA

CN KC 10UBR (9CI) (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IT 498-66-8D, Norbornene, derivs., polymers  
(optical compensation plates for reflection type liquid crystal projectors)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 911289-13-9, SES 440025  
(phase shifting film; optical compensation plates for reflection type liquid crystal projectors)  
RN 911289-13-9 HCA  
CN SES 440025 (9CI) (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IPCI G02B0005-30 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]  
IPCR G02B0005-30 [I,C]; G02B0005-30 [I,A]; G02F0001-13 [I,C]; G02F0001-13363 [I,A]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 73  
ST optical compensation film LCD projector  
IT Optical instruments  
(retarders; optical compensation plates for reflection type liquid crystal projectors)  
IT 9004-34-6D, Cellulose, modified 911288-78-3, KC 10UBR  
(optical compensation film; optical compensation plates for reflection type liquid crystal projectors)  
IT 498-66-8D, Norbornene, derivs., polymers  
(optical compensation plates for reflection type liquid crystal projectors)  
IT 911289-13-9, SES 440025  
(phase shifting film; optical compensation plates for reflection type liquid crystal projectors)

L45 ANSWER 13 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 145:303021 HCA Full-text  
TITLE: Aggregate-free optical films with good transparency and handleability and manufacture thereof by surface processing  
INVENTOR(S): Sugitani, Shoichi  
PATENT ASSIGNEE(S): Konica Minolta Opto Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006240228	A	20060914	JP 2005-62295	20050307 <--
PRIORITY APPLN. INFO.:			JP 2005-62295	20050307 <--

AB Cast/extruded optical films are surface treated with pattern-transfer rolls, before winding, to have good sliding property without fillers. The films have, after wound, surface roughness (Ra) 0.5-50.0 nm. The optical films are useful for polarizer protective films, optical retarders, antireflective films, etc., for displays.

IT 498-66-9D, Norbornene, polymers 9004-39-1, Cellulose acetate propionate 370857-78-6, Zeonor 1420 (manufacture of aggregate-free optical films with good transparency and handleability by surface roll processing)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9004-39-1 HCA

CN Cellulose, acetate propanoate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4

CMF C3 H6 O2



CM 3

CRN 64-19-7

CMF C2 H4 O2



RN 370857-78-6 HCA

CN Zeonor 1420 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI B29C0059-04 [I,A]; B29C0041-28 [I,A]; B29C0041-00 [I,C\*]; B29C0041-52 [I,A]; B29C0041-34 [I,C\*]; B29C0047-14 [I,A]; C08J0005-18 [I,A]; G02B0005-30 [I,A]

IPCR B29C0059-04 [I,C]; B29C0059-04 [I,A]; B29C0041-00 [I,C]; B29C0041-28 [I,A]; B29C0041-34 [I,C]; B29C0041-52 [I,A]; B29C0047-14 [I,C]; B29C0047-14 [I,A]; B29L0007-00 [N,A]; B29L0011-00 [N,A]; C08J0005-18 [I,C]; C08J0005-18 [I,A]; C08L0101-00 [N,C]; C08L0101-00 [N,A]; G02B0005-30 [I,C]; G02B0005-30 [I,A]

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 73

ST display optical film surface roll patterning sliding property;  
cellulose acetate propionate optical film aggregate prevention;  
norbornene polymer optical film handleability  
transparency

IT Optical films  
Optical imaging devices  
(manufacture of aggregate-free optical films with good transparency and handleability by surface roll processing)

IT 498-66-8D, Norbornene, polymers 9094-39-1, Cellulose acetate propionate 370857-78-6, Zeonor 1420  
(manufacture of aggregate-free optical films with good transparency and handleability by surface roll processing)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L45 ANSWER 14 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 145:272697 HCA Full-text  
TITLE: Method and T-die for manufacture of thermoplastic resin films with high thickness accuracy by extrusion  
INVENTOR(S): Ogino, Kentaro; Hasegawa, Hitoshi  
PATENT ASSIGNEE(S): Sekisui Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006224462	A	20060831	JP 2005-41121	20050217 <--
PRIORITY APPLN. INFO.:			JP 2005-41121	20050217 <--

AB The T-die contain a WC-based hard metal-surface treated part from a downstream of a lip land to a lip and a metal (other than the hard metals)-plated upstream part of the WC-treated part in the clearance ratio of the joint between the WC-treated part and the metal-plated part (R2) to the lip (R1) of  $\geq 1.5$ . The thermoplastic resin films extruded using the T-die are useful for optical retardation films for liquid crystal displays (LCDs). Thus, a hydrogenated norbornene polymer (Zeonor 1420) was extruded through a T-die with WC- and hard Cr-treated parts into an optical film showing uniform thickness and no die lines.

IT 12070-12-1, Tungsten-carbide  
(WC- and hard Cr-treated extrusion T-die of thermoplastic resin optical films with high thickness accuracy for LCDs)

RN 12070-12-1 HCA  
CN Tungsten carbide (WC) (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 498-66-8D, Norbornene, polymers, hydrogenated 370857-78-6, Zeonor 1420  
(WC- and hard Cr-treated extrusion T-die of thermoplastic resin optical films with high thickness accuracy for LCDs)

RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 370857-78-6 HCA  
 CN Zeonor 1420 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 7440-47-3, Chromium, uses  
     (hard; WC- and hard Cr-treated extrusion T-die of thermoplastic resin  
     optical films with high thickness accuracy for LCDs)  
 RN 7440-47-3 HCA  
 CN Chromium (CA INDEX NAME)

Cr

IPCI B29C0047-14 [I,A]  
 IPCR B29C0047-14 [I,C]; B29C0047-14 [I,A]; B29K0101-12 [N,A]; B29L0007-00 [N,A]  
 CC 38-2 (Plastics Fabrication and Uses)  
     Section cross-reference(s): 74  
 ST norbornene polymer film liq crystal display; tungsten carbide  
     chromium treated T die; thickness accuracy thermoplastic resin optical  
     film; uniform thickness hydrogenated norbornene polymer  
     film; die line prevention optical retardation  
     film; hard metal extrusion die polynorbornene film  
 IT Liquid crystal displays  
     Optical films  
     Plastic films  
         (WC- and hard Cr-treated extrusion T-die of thermoplastic resin optical  
         films with high thickness accuracy for LCDs)  
 IT Carbides  
     (cemented; WC- and hard Cr-treated extrusion T-die of thermoplastic  
     resin optical films with high thickness accuracy for LCDs)  
 IT Dies  
     (extrusion; WC- and hard Cr-treated extrusion T-die of thermoplastic  
     resin optical films with high thickness accuracy for LCDs)  
 IT Plastics, uses  
     (thermoplastics; WC- and hard Cr-treated extrusion T-die of  
     thermoplastic resin optical films with high thickness  
     accuracy for LCDs)  
 IT 12070-12-1, Tungsten-carbide  
     (WC- and hard Cr-treated extrusion T-die of thermoplastic resin optical  
     films with high thickness accuracy for LCDs)  
 IT 498-66-8D, Norbornene, polymers, hydrogenated 370857-78-6  
     , Zeonor 1420  
     (WC- and hard Cr-treated extrusion T-die of thermoplastic resin optical  
     films with high thickness accuracy for LCDs)  
 IT 7440-47-3, Chromium, uses  
     (hard; WC- and hard Cr-treated extrusion T-die of thermoplastic resin  
     optical films with high thickness accuracy for LCDs)

L45 ANSWER 15 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 144:469261 HCA Full-text  
 TITLE: Transparent deformation-resistant  
 electrically conducting ethylenedioxythiophene  
 polymer-norbornene polymer composite films,  
 their manufacture, and their electrodes  
 INVENTOR(S): Sugiyama, Naoki; Imai, Takateru  
 PATENT ASSIGNEE(S): JSR Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006116806	A	20060511	JP 2004-306906	20041021 <--
PRIORITY APPLN. INFO.:			JP 2004-306906	20041021 <--
AB	The laminated films, useful for touch panels and electronic paper, comprise norbornene polymer layers and ethylenedioxythiophene polymer-containing elec. conductive layers with surface resistivity $\leq 2 \times 10^3 \Omega/\text{box}$ . Thus, an elec. conductive film comprising a norbornene polymer film (Arton) treated with a corona and an water-dispersible conductive polymer (Orgacon) showed total light transmittance 82.3%, surface resistance in bending at 3- and 100-mm curvature radius, resp., 3.3 and 3.0 k $\Omega$ , retardation value 1 nm, and good interlayer adhesion (JIS K 5600).			
IT	498-66-8D, Norbornene, derivs., polymers (Arton; transparent deformation-resistant elec. conducting ethylenedioxythiophene polymer-norbornene polymer laminated films for electrodes)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



IT 854986-83-7, Hydran WLS 201  
 (coating for norbornene polymer film;  
 transparent deformation-resistant elec. conducting  
 ethylenedioxythiophene polymer-norbornene polymer laminated  
 films for electrodes)  
 RN 854986-83-7 HCA  
 CN Hydran WLS 201 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 503315-57-9, Desolite Z 7524  
 (hardcoat; transparent deformation-resistant elec. conducting  
 ethylenedioxythiophene polymer-norbornene polymer laminated  
 films for electrodes)  
 RN 503315-57-9 HCA  
 CN Desolite Z 7524 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 9012-09-3, TAC

(transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)

RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



IPCI B32B0027-00 [I,A]; B32B0007-02 [I,A]; H01B0005-14 [I,A]; H01B0013-00 [I,A]

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST transparency electrode multilayer norbornene  
ethylenedioxythiophene polymer; deformation resistance electronic paper  
polynorbornene polyethylenedioxythiophene; elec conductive  
laminated film touch panel; interlayer adhesion optical  
film polynorbornene polythiophene

IT Polyurethanes, uses  
(coatings for norbornene polymer films;  
transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)

IT Films  
(elec. conductive; transparent deformation-resistant elec.  
conducting ethylenedioxythiophene polymer-norbornene polymer  
laminated films for electrodes)

IT Paper  
(electronic, electrodes for; transparent  
deformation-resistant elec. conducting ethylenedioxythiophene  
polymer-norbornene polymer laminated films for  
electrodes)

IT Electric conductors  
(films; transparent deformation-resistant elec.  
conducting ethylenedioxythiophene polymer-norbornene polymer  
laminated films for electrodes)

IT Conducting polymers  
(polythiophenes, Orgacon; transparent deformation-resistant  
elec. conducting ethylenedioxythiophene polymer-norbornene polymer  
laminated films for electrodes)

IT Optical imaging devices  
(touch panels, electrodes for; transparent  
deformation-resistant elec. conducting ethylenedioxythiophene  
polymer-norbornene polymer laminated films for  
electrodes)

IT Film electrodes



Laminated plastic films  
Polarizing films  
Transparent films  
(transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)  
IT 498-66-8D, Norbornene, derivs., polymers  
(Arton; transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)  
IT 854986-83-7, Hydran WLS 201  
(coating for norbornene polymer film;  
transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)  
IT 503315-57-9, Desolite Z 7524  
(hardcoat; transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)  
IT 9012-09-3, TAC  
(transparent deformation-resistant elec. conducting  
ethylenedioxythiophene polymer-norbornene polymer laminated  
films for electrodes)  
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)

L45 ANSWER 16 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 144:458603 HCA Full-text  
TITLE: Optical compensating film, polarizing plate  
with it, and liquid crystal display  
INVENTOR(S): Hung, Wei-Ze; Chang, Chin-Shen; Wu, Lung-Hai  
PATENT ASSIGNEE(S): Optimax Technology Corporation, Taiwan  
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006126733	A	20060518	JP 2004-318282	20041101 <--
PRIORITY APPLN. INFO.:			JP 2004-318282	20041101 <--

AB The film comprises  $\geq 1$  light blocking layer (A) on a transparent polymer layer (B), in which the layer A and B satisfy the following conditions: (1)  $220 \text{ nm} < R_o(a) + R_o(b) < 0.1 \text{ nm}$ ; (2)  $-270 \text{ nm} < R_{th}(a) + R_{th}(b) < 110 \text{ nm}$  [ $R_o(a)$  and  $R_{th}(a)$ ,  $R_o(b)$  and  $R_{th}(b)$  = resp.  $R_o$  and  $R_{th}$  value of the layer A and the film B]; (3)  $R_o = (n_x - n_y) + d$  ( $n_x$ ,  $n_y$  = refractive index to X and Y direction on the surface, resp.;  $d$  = thickness); and (4)  $R_{th} = [(n_x + n_y)/2 - n_z] + d$  ( $n_z$  = refractive index to Z direction on the thickness). The polarizing plate comprises the first transparent base plate (C), a polarizing thin layer (D) on the plate C, and the above obtained film. Alternatively, the polarizing plate has the layer D and  $\geq 1$  optical compensating film (E) formed as a protective layer for the layer D directly on the opposite side of the plate C. The display comprises a liquid crystal element (F) with an upper and a lower surface and the first polarizing plate (G) on the upper surface, having the integrated film E, in which the plate G comprises the plate C, the layer D, and the film E which is formed directly on the layer D and integrated with the plate C and the layer D. Alternatively, the display comprises the element F and the plate G integrated with the upper or the lower surface, comprising the

plate C, layer D, and the above obtained film. The display improves view angle and color shift, forming thin structure.

IT 9002-89-5, Polyvinyl alcohol  
(polarizing thin layer; optical compensating film  
having light blocking layer on transparent polymer  
layer for polarizing plate and liquid crystal display)

RN 9002-89-5 HCA

CN Ethenol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5

CMF C2 H4 O



IT 9012-09-3, Triacetylcellulose  
(transparent polymer layer and transparent  
base plate; optical compensating film having light blocking  
layer on transparent polymer layer for  
polarizing plate and liquid crystal display)

RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2

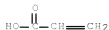


IT 79-10-7D, Acrylic acid, polymers 100-42-5D, Styrene,  
polymers 141-78-6D, Ethyl acetate, derivs., polymers  
498-66-8D, Norbornene, polymers 9004-48-2, Cellulose  
propionate

(transparent polymer layer; optical compensating  
film having light blocking layer on  
transparent polymer layer for polarizing plate and  
liquid crystal display)

RN 79-10-7 HCA

CN 2-Propenoic acid (CA INDEX NAME)



RN 100-42-5 HCA  
 CN Benzene, ethenyl- (CA INDEX NAME)



RN 141-78-6 HCA  
 CN Acetic acid ethyl ester (CA INDEX NAME)



RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9004-48-2 HCA  
 CN Cellulose, propanoate (CA INDEX NAME)

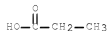
CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4  
 CMF C3 H6 O2



IPCI G02B0005-30 [I,A]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 73

ST optical compensating film polarizer liq crystal display;  
 triacetylcellulose transparent polymer compensator film  
 polarizer

- IT Liquid crystal displays  
Optical films  
Polarizers  
(optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)
- IT Optical instruments  
(retarders; optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)
- IT Polyamides, uses  
Polycarbonates, uses  
(transparent polymer layer; optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)
- IT 9002-89-5, Polyvinyl alcohol  
(polarizing thin layer; optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)
- IT 9012-09-3, Triacetylcellulose  
(transparent polymer layer and transparent base plate; optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)
- IT 79-10-7D, Acrylic acid, polymers 100-42-5D, Styrene, polymers 141-78-6D, Ethyl acetate, derivs., polymers 498-66-8D, Norbornene, polymers 9004-48-2, Cellulose propionate  
(transparent polymer layer; optical compensating film having light blocking layer on transparent polymer layer for polarizing plate and liquid crystal display)

L45 ANSWER 17 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 144:139064 HCA Full-text  
TITLE: Antireflective transparent sheet  
polarizers with high scratch resistance, and liquid crystal displays  
INVENTOR(S): Arakawa, Kohei; Yoshihara, Maki; Ishii, Tsumoru  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 27 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006018089	A	20060119	JP 2004-196792	20040702 <--
PRIORITY APPLN. INFO.:			JP 2004-196792	20040702 <--

AB The sheet polarizer comprises a polarizer, successively laminated with (A) a transparent protective layer, (B) a hard coating layer, and (C) a low-refractive-index layer (from the bottom, successively in this order), and a transparent protective layer on the other side of the polarizer. The A layer contains polyesters with  $\leq 1.0$  haze value (for 50  $\mu\text{m}$  thickness), and the sheet polarizer has pencil hardness of  $\geq \text{H}$  on the A side. Preferably, the D layer is made of an alicyclic polymer or a cellulose resin. Also claimed are liquid crystal displays comprising the A layer on the visible side.

IT 1314-60-9, Antimony oxide  
(fine particles, in hard coating layer;  
sheet polarizer having transparent protective  
polyester layer, and LCD comprising same protective  
layer)  
RN 1314-60-9 HCA  
CN Antimony oxide (Sb2O5) (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IT 7631-86-9, Silica, uses  
(fine particles, in low-refractive-index layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)  
RN 7631-86-9 HCA  
CN Silica (CA INDEX NAME)

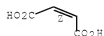
====S1====

IT 82116-59-4, Shikoh UV 7000B  
(hard coating layer; sheet polarizer  
having transparent protective polyester layer, and  
LCD comprising same protective layer)  
RN 82116-59-4 HCA  
CN Shikoh UV 7000B (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IT 7553-56-2, Iodine, uses  
(in boric acid-crosslinked poly(vinyl alc.) polarizer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)  
RN 7553-56-2 HCA  
CN Iodine (CA INDEX NAME)

I-I

IT 110-16-7D, Maleic acid, polymers with olefins 9003-53-6,  
Polystyrene 9011-13-6, Dylark D 332 304467-14-9,  
Zeonor 1020 866919-68-8, Modic AP F534A  
(in transparent protective layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)  
RN 110-16-7 HCA  
CN 2-Butenedioic acid (2Z)- (CA INDEX NAME)

Double bond geometry as shown.



RN 9003-53-6 HCA  
CN Benzene, ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 100-42-5

CMF C8 H8



RN 9011-13-6 HCA

CN 2,5-Furandione, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 108-31-6

CMF C4 H2 O3



CM 2

CRN 100-42-5

CMF C8 H8



RN 304467-14-9 HCA

CN Zeonor 1020 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 866919-68-8 HCA

CN Modic AP-F 534A (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 12002-26-5, Methyl silicate 51  
(low-refractive-index layer; sheet polarizer having  
transparent protective polyester layer, and LCD  
comprising same protective layer)

RN 12002-26-5 HCA

CN Silicic acid, methyl ester (CA INDEX NAME)

CM 1

CRN 1343-98-2

CMF Unspecified

CCI MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 67-56-1

CMF C H4 O



IT 142517-79-1D, Boric acid-vinyl alcohol copolymer, iodine-containing  
(polarizer; sheet polarizer having transparent  
protective polyester layer, and LCD comprising same  
protective layer)  
RN 142517-79-1 HCA  
CN Boric acid (H3BO3), polymer with ethenol (CA INDEX NAME)

CM 1

CRN 10043-35-3  
CMF B H3 O3

CM 2

CRN 557-75-5  
CMF C2 H4 O

IT 498-66-8D, Norbornene, polymers 9012-09-3, KC 4UX2M  
25038-59-9, Cosmashine A 4100, uses 294864-12-3, Zeonor  
1420R  
(transparent protective layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9012-09-3 HCA  
CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

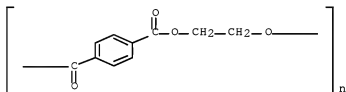
CM 2

CRN 64-19-7  
CMF C2 H4 O2



RN 25038-59-9 HCA

CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (CA INDEX NAME)



RN 294864-12-3 HCA

CN Zeonor 1420R (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI G02B0005-30 [I,A]; G02F0001-1335 [I,A]; G02F0001-13 [I,C\*]; G02B0001-11 [I,A]; G02B0001-10 [I,A]

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 73

ST sheet polarizer polyester transparent protective layer; liq crystal display transparent protective layer polyester

IT Polyurethanes, uses  
(acrylic, hard coating layer; sheet polarizer having transparent protective polyester layer, and LCD comprising same protective layer)

IT Alkenes, uses  
(polymers with maleic acid, in transparent protective layer; sheet polarizer having transparent protective polyester layer, and LCD comprising same protective layer)

IT Acrylic polymers, uses  
(polyurethane-, hard coating layer; sheet polarizer having transparent protective polyester layer, and LCD comprising same protective layer)

IT Optical instruments  
(retardars; sheet polarizer having transparent protective polyester layer, and LCD comprising same protective layer)

IT Liquid crystal displays  
Polarizing films  
(sheet polarizer having transparent protective



- polyester layer, and LCD comprising same protective layer)
- IT 1314-60-9, Antimony oxide  
(fine particles, in hard coating layer;  
sheet polarizer having transparent protective  
polyester layer, and LCD comprising same protective  
layer)
- IT 1314-60-9, Antimony oxide  
(fine particles, in hard coating layer;  
sheet polarizer having transparent protective  
polyester layer, and LCD comprising same protective  
layer)
- IT 7631-86-9, Silica, uses  
(fine particles, in low-refractive-index layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)
- IT 82116-59-4, Shikoh UV 7000B  
(hard coating layer; sheet polarizer  
having transparent protective polyester layer, and  
LCD comprising same protective layer)
- IT 7553-56-2, Iodine, uses  
(in boric acid-crosslinked poly(vinyl alc.) polarizer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)
- IT 110-16-7D, Maleic acid, polymers with olefins 9003-53-6,  
Polystyrene 9011-13-6, Dylark D 332 304467-14-9,  
Zeonor 1020 866919-68-8, Modic AP F534A  
(in transparent protective layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)
- IT 12002-26-5, Methyl silicate 51  
(low-refractive-index layer; sheet polarizer having  
transparent protective polyester layer, and LCD  
comprising same protective layer)
- IT 142517-79-1D, Boric acid-vinyl alcohol copolymer, iodine-containing  
(polarizer; sheet polarizer having transparent  
protective polyester layer, and LCD comprising same  
protective layer)
- IT 498-66-8D, Norbornene, polymers 9012-09-3, KC 4UX2M  
25038-59-9, Cosmoshine A 4100, uses 294864-12-3, Zeonor  
1420R  
(transparent protective layer; sheet  
polarizer having transparent protective polyester  
layer, and LCD comprising same protective layer)

L45 ANSWER 18 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 144:129962 HCA Full-text

TITLE: Melt casting method of thermoplastic resin optical  
films with good transparency and  
uniform retardation

INVENTOR(S): Yajima, Takatoshi

PATENT ASSIGNEE(S): Konica Minolta Opto Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006021459 A 20060126 JP 2004-202654 20040709 <--  
PRIORITY APPLN. INFO.: JP 2004-202654 20040709 <--  
AB The manufacturing method involves cooling of melt-extruded thermoplastic resin cast films using an amorphous Cr-plated chill-roll. Thus, an optical film of a hydrogenated norbornene ring-opening polymer (Zeonor 1420R) showed haze (JIS K 6714) 1.5% and no scratches. A polarizing plate comprising the optical film, a polarizing film of poly(vinyl alc.), and a protective film of a saponified cellulose triacetate (Konica Tac) was installed in a liquid crystal display to show wide angle of view.  
IT 9912-09-3D, Cellulose triacetate polymer, saponified (Konica Tac, protective film for poly(vinyl alc.) polarizing film; melt casting method of transparent thermoplastic resin liquid crystal display polarizing films with uniform retardation by cooling an amorphous Cr-plated chill-roll)  
RN 9012-09-3 HCA  
CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
CMF C2 H4 O2



IT 7440-47-3, Chromium, uses (amorphous; melt casting method of transparent thermoplastic resin liquid crystal display polarizing films with uniform retardation by cooling an amorphous Cr-plated chill-roll)  
RN 7440-47-3 HCA  
CN Chromium (CA INDEX NAME)

Cr

IT 498-66-8D, Norbornene, ring-opening polymers, hydrogenated 294864-12-3, Zeonor 1420R (melt casting method of transparent thermoplastic resin liquid crystal display polarizing films with uniform retardation by cooling an amorphous Cr-plated chill-roll)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 294864-12-3 HCA  
 CN Zeonor 1420R (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 9004-39-1, Cellulose acetate propionate  
 (optical retardation film; melt casting method of  
 transparent thermoplastic resin liquid crystal display polarizing  
 films with uniform retardation by cooling an  
 amorphous Cr-plated chill-roll)  
 RN 9004-39-1 HCA  
 CN Cellulose, acetate propanoate (CA INDEX NAME)

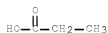
CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4  
 CMF C3 H6 O2



CM 3

CRN 64-19-7  
 CMF C2 H4 O2



IT 9002-89-5, Poly(vinyl alcohol)  
 (polarizing film or adhesive; melt casting method of  
 transparent thermoplastic resin liquid crystal display polarizing  
 films with uniform retardation by cooling an  
 amorphous Cr-plated chill-roll)  
 RN 9002-89-5 HCA  
 CN Ethanol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5  
 CME C2 H4 O

H<sub>2</sub>C=CH-OH

- IPCI B29C0047-88 [I,A]; G02B0005-30 [N,A]  
 CC 38-2 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73, 74
- ST uniform retardation melt casting thermoplastic resin;  
 transparency polynorbornene film wide angle view;  
 amorphous chromium plated chill roll film; scratch free  
 norbornene polymer cast film; optical film  
 hydrogenated ring opening polynorbornene; liq crystal display polarizing  
 plate polynorbornene
- IT Extrusion apparatus for plastics and rubbers  
 (chill-roll; melt casting method of transparent thermoplastic  
 resin liquid crystal display polarizing films with uniform  
 retardation by cooling an amorphous Cr-plated chill-roll)
- IT Casting of polymeric materials  
 (film; melt casting method of transparent  
 thermoplastic resin liquid crystal display polarizing films  
 with uniform retardation by cooling an amorphous Cr-plated  
 chill-roll)
- IT Liquid crystal displays  
 Plastic films  
 Polarizing films  
 Transparent films  
 (melt casting method of transparent thermoplastic resin liquid  
 crystal display polarizing films with uniform  
 retardation by cooling an amorphous Cr-plated chill-roll)
- IT Alicyclic compounds  
 (polymers; melt casting method of transparent thermoplastic  
 resin liquid crystal display polarizing films with uniform  
 retardation by cooling an amorphous Cr-plated chill-roll)
- IT Plastics, uses  
 (thermoplastics; melt casting method of transparent  
 thermoplastic resin liquid crystal display polarizing films  
 with uniform retardation by cooling an amorphous Cr-plated  
 chill-roll)
- IT 9012-09-3D, Cellulose triacetate polymer, saponified  
 (Konica Tac, protective film for poly(vinyl alc.) polarizing  
 film; melt casting method of transparent  
 thermoplastic resin liquid crystal display polarizing films  
 with uniform retardation by cooling an amorphous Cr-plated  
 chill-roll)
- IT 7440-47-3, Chromium, uses  
 (amorphous; melt casting method of transparent thermoplastic  
 resin liquid crystal display polarizing films with uniform  
 retardation by cooling an amorphous Cr-plated chill-roll)
- IT 498-66-8D, Norbornene, ring-opening polymers, hydrogenated  
 294864-12-3, Zeonor 1420R  
 (melt casting method of transparent thermoplastic resin liquid  
 crystal display polarizing films with uniform  
 retardation by cooling an amorphous Cr-plated chill-roll)
- IT 9004-39-1, Cellulose acetate propionate  
 (optical retardation film; melt casting method of  
 transparent thermoplastic resin liquid crystal display polarizing

films with uniform retardation by cooling an amorphous Cr-plated chill-roll)  
IT 9002-89-5, Poly(vinyl alcohol)  
(polarizing film or adhesive; melt casting method of transparent thermoplastic resin liquid crystal display polarizing films with uniform retardation by cooling an amorphous Cr-plated chill-roll)

L45 ANSWER 19 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 144:89301 HCA Full-text  
TITLE: Manufacture of microvoid-free optical films of thermoplastic norbornene resins showing high uniformity and transparency  
INVENTOR(S): Inui, Shigehiro  
PATENT ASSIGNEE(S): Sekisui Chemical Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2006007715	A	20060112	JP 2004-191622	20040629 <--
PRIORITY APPLN. INFO.:			JP 2004-191622	20040629 <--
AB	Thermoplastic saturated norbornene resins are melt extruded from vent hole-equipped extruders, degassing through the holes (in vacuo or at reduced pressure of $\leq 3.47 + 104$ Pa), to give the optical films, useful for LCD polarizer protective films, optical retarders, etc. Thus, Arton G 62 (thermoplastic saturated norbornene resin) was extruded degassing in vacuo to give microvoid-free optical film with haze 0.1% and total light transmittance 91%.			
IT	379270-85-6, Arton G 62 (manufacture of microvoid-free optical films of thermoplastic norbornene resins by extrusion under degassing)			
RN	379270-85-6 HCA			
CN	Arton G 62 (9CI) (CA INDEX NAME)			
***	STRUCTURE DIAGRAM IS NOT AVAILABLE ***			
IT	498-66-8D, Norbornene, polymers (saturated; manufacture of microvoid-free optical films of thermoplastic norbornene resins by extrusion under degassing)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



IPCI B29C0047-76 [I,A]; G02B0005-30 [I,A]  
CC 38-2 (Plastics Fabrication and Uses)  
Section cross-reference(s): 73  
ST thermoplastic satd norbornene optical film microvoid free;  
norbornene optical film transparency extrusion vacuum  
degassing; LCD polarizer protective film retarder

norbornene resin  
 IT Degassing  
 Extrusion of plastics and rubbers  
 Optical films  
 (manufacture of microvoid-free optical films of thermoplastic  
 norbornene resins by extrusion under degassing)  
 IT Degassing  
 (vacuum; manufacture of microvoid-free optical films of  
 thermoplastic norbornene resins by extrusion under degassing)  
 IT 379270-85-6, Arton G 62  
 (manufacture of microvoid-free optical films of thermoplastic  
 norbornene resins by extrusion under degassing)  
 IT 498-66-8D, Norbornene, polymers  
 (saturated; manufacture of microvoid-free optical films of  
 thermoplastic norbornene resins by extrusion under degassing)

L45 ANSWER 20 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 143:396473 HCA Full-text  
 TITLE: Multilayer polymer laminates for optical  
 use, optical instruments, and liquid crystal displays  
 INVENTOR(S): Asada, Takeshi  
 PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005292311	A	20051020	JP 2004-104689	20040331 <--
JP 4433854	B2	20100317		
JP 2010002924	A	20100107	JP 2009-223091	20090928 <--
PRIORITY APPLN. INFO.:			JP 2004-104689	A3 20040331 <--

AB The optical laminates include at least an A layer comprising A polymer showing neg. intrinsic birefringence and a B layer comprising a transparent B polymer, under satisfaction of the following conditions, (1) |face retardation of layer A| > |face retardation of layer B|, (2) (glass transition temperature of layer A) > (glass transition temperature of layer B), and (3) 0.5 < (widthwise tensile strength/longitudinal tensile strength) < 2.0. Optical instruments comprising polarizing plates and the laminates and liquid crystal displays including the said optical instruments are also claimed. The laminates are resistant to tearing and give liquid crystal displays with wide view angle and small retardation change.

IT 866919-68-8, Modic AP-F 534A  
 (adhesive layer; multilayered optical films  
 including neg. intrinsic birefringence layers and  
 transparent layers for and liquid crystal displays)

RN 866919-68-8 HCA  
 CN Modic AP-F 534A (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 9003-53-6, Polystyrene 9003-54-7, Stylac T 8707  
 9011-13-6, Dylark D 332  
 (neg. intrinsic birefringence layer; multilayered optical  
 films including neg. intrinsic birefringence layers  
 and transparent layers for and liquid crystal  
 displays)

RN 9003-53-6 HCA  
 CN Benzene, ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 100-42-5

CMF C8 H8



RN 9003-54-7 HCA

CN 2-Propenenitrile, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 107-13-1

CMF C3 H3 N



CM 2

CRN 100-42-5

CMF C8 H8



RN 9011-13-6 HCA

CN 2,5-Furandione, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 108-31-6

CMF C4 H2 O3



CM 2

CRN 100-42-5

CMF C8 H8



IT 498-66-8D, Norbornene, polymers 304467-14-9, Zeonor 1020  
 866919-67-7, Zeonor 750  
 (transparent layer; multilayered optical  
 films including neg. intrinsic birefringence layers  
 and transparent layers for and liquid crystal  
 displays)  
 RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 304467-14-9 HCA  
 CN Zeonor 1020 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 866919-67-7 HCA  
 CN Zeonor 750 (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI G02B0005-30 [I,A]; B32B0007-02 [I,A]; G02F0001-13363 [I,A]; G02F0001-13  
 [I,C\*]  
 IPCR B32B0007-02 [I,A]; B32B0007-02 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30  
 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 73  
 ST neg intrinsic birefringence polymer transparent film  
 laminate; liq crystal display multilayer optical film  
 wide view angle; multilayer polymer laminate optical instrument  
 IT Polyolefins  
 (maleic acid-modified, adhesive layer; multilayered optical  
 films including neg. intrinsic birefringence layers  
 and transparent layers for and liquid crystal  
 displays)  
 IT Optical films  
 (multilayer; multilayered optical films including neg.  
 intrinsic birefringence layers and transparent  
 layers for and liquid crystal displays)  
 IT Liquid crystal displays  
 Optical instruments  
 (multilayered optical films including neg. intrinsic  
 birefringence layers and transparent layers  
 for and liquid crystal displays)  
 IT Laminated plastics, uses  
 (multilayered optical films including neg. intrinsic  
 birefringence layers and transparent layers  
 for and liquid crystal displays)  
 IT 866919-68-8, Modic AP-F 534A  
 (adhesive layer; multilayered optical films  
 including neg. intrinsic birefringence layers and  
 transparent layers for and liquid crystal displays)  
 IT 9003-53-6, Polystyrene 9003-54-7, Stylac T 8707  
 9011-13-8, Dylark D 332  
 (neg. intrinsic birefringence layer; multilayered optical  
 films including neg. intrinsic birefringence layers)



and transparent layers for and liquid crystal displays)  
IT 498-66-8D, Norbornene, polymers 304467-14-9, Zeonor 1020  
866919-67-7, Zeonor 750  
(transparent layer; multilayered optical  
films including neg. intrinsic birefringence layers  
and transparent layers for and liquid crystal  
displays)

L45 ANSWER 21 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 143:327328 HCA Full-text  
TITLE: Optical laminates for brightness improving  
films

INVENTOR(S): Ueshima, Mitsugu; Murakami, Toshihide; Sawada, Hideo  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan; Future Vision Inc.  
SOURCE: Jpn. Kokai Tokkyo Koho, 27 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005265896	A	20050929	JP 2004-73981	20040316 <--
JP 4570377	B2	20101027		

PRIORITY APPLN. INFO.: JP 2004-73981 20040316 <--

AB Title laminates comprise a transparent substrate and a liquid crystal layer which the spiral pitch of the liquid crystal polymer is continuously changing, wherein the fluorinated alkyl group-containing compds. are contained in the liquid crystal layer. Thus, an optically active monomer having a terminal fluoroalkyl group was polymerized to give a fluoroalkyl-containing polymer with Mn 4000, polydispersity 1.77, and fluorine content 4.89%, 1.9 parts of which was mixed with 4-[4-[(1-oxo-2-propenyl)oxy]butoxy]-, 4-[4-[(6-[(1-oxo-2-propenyl)oxy]hexyl)oxy]benzoyl)oxy]phenyl benzoate 8.2, 2-methyl-1-[4-(methylthio)phenyl]-2-(4-morpholinyl)-propanone 0.3, and MEK 24.0 parts, applied on an oriented polyvinyl alc.-coated transparent substrate, dried at room temperature for 10 s, heated at 100° for 2 min, and irradiated with an UV-ray to give a cholesteric liquid crystal layer-containing circularly polarized light separating layer, which was fabricated with a phase retardation film and a 1/4 wave plate into a brightness improving film, showing good image when applied to a liquid crystal display.

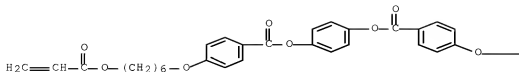
IT 123864-18-6P  
(cholesteric liquid crystal, circularly polarized light separating  
layer; optical laminates for brightness improving  
films)

RN 123864-18-6 HCA  
CN Benzoic acid, 4-[[6-[(1-oxo-2-propen-1-yl)oxy]hexyl)oxy]-,  
1,1'-(1,4-phenylene) ester, homopolymer (CA INDEX NAME)

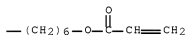
CM 1

CRN 123864-17-5  
CMF C38 H42 O10

PAGE 1-A



PAGE 1-B



IT 865449-26-9P

(circularly polarized light separating layer containing; optical laminates for brightness improving films)

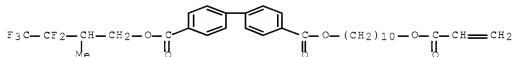
RN 865449-26-9 HCA

CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, 10-[(1-oxo-2-propenyl)oxy]decyl 3,3,4,4,4-pentafluoro-2-methylbutyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 865449-25-8

CMF C32 H37 F5 O6



IT 370857-78-6, Zeonor 1420

(optical laminates for brightness improving films)

RN 370857-78-6 HCA

CN Zeonor 1420 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 9002-89-5, Polyvinyl alcohol

(orientation layer; optical laminates for brightness improving films)

RN 9002-89-5 HCA

CN Ethanol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5

CMF C2 H4 O



IT 498-66-8D, Norbornene, polymers  
(retarder or 1/4 wave plate; optical laminates for  
brightness improving films)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 9011-13-6, Dylark D 332  
(retarder or 1/4 wave plate; optical laminates for  
brightness improving films)

RN 9011-13-6 HCA

CN 2,5-Furandione, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 108-31-6

CMF C4 H2 O3



CM 2

CRN 100-42-5

CMF C8 H8



IT 304467-14-9, Zeonor 1020  
(retarder; optical laminates for brightness  
improving films)

RN 304467-14-9 HCA

CN Zeonor 1020 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI G02B0005-30 [I,A]; B32B0027-18 [I,A]; G02F0001-13 [I,A]; G02F0001-1335 [I,A]

IPCR B32B0027-18 [I,A]; B32B0027-18 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30 [I,C\*]; G02F0001-13 [I,A]; G02F0001-13 [I,C\*]; G02F0001-1335 [I,A]

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73, 74, 75

ST optical laminate brightness improving film; optically  
active fluoroalkyl contg polymer circularly polarized light separator

IT Fluoropolymers  
(acrylic, fluoroalkyl group-containing, circularly polarized light separating layer containing; optical laminates for brightness improving films)

IT Liquid crystals  
(cholesteric, circularly polarized light separating layer; optical laminates for brightness improving films)

IT Polarized light  
(devices, application; optical laminates for brightness improving films)

IT Acrylic polymers  
(fluoroalkyl group-containing, circularly polarized light separating layer containing; optical laminates for brightness improving films)

IT Laminated plastic films  
Liquid crystal displays  
(optical laminates for brightness improving films)

IT Alicyclic compounds  
(polymers, substrates; optical laminates for brightness improving films)

IT Optical instruments  
(retarders; optical laminates for brightness improving films)

IT Transparent materials  
(substrates; optical laminates for brightness improving films)

IT 123864-18-6P  
(cholesteric liquid crystal, circularly polarized light separating layer; optical laminates for brightness improving films)

IT 865449-26-9P  
(circularly polarized light separating layer containing; optical laminates for brightness improving films)

IT 370857-78-6, Zeonor 1420  
(optical laminates for brightness improving films)

IT 9002-89-5, Polyvinyl alcohol  
(orientation layer; optical laminates for brightness improving films)

IT 498-66-8D, Norbornene, polymers  
(retarder or 1/4 wave plate; optical laminates for brightness improving films)

IT 9011-13-6, Dylark D 332  
(retarder or 1/4 wave plate; optical laminates for brightness improving films)

IT 304467-14-9, Zeonor 1020  
(retarder; optical laminates for brightness improving films)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L45 ANSWER 22 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 143:183277 HCA Full-text  
TITLE: Thermoplastic saturated norbornene resin films with high transparency and good mechanical strength and optical films, polarizer protective films, retardation plates, and polarizer plates therefrom  
INVENTOR(S): Toyoshima, Katsunori; Morita, Takeharu  
PATENT ASSIGNEE(S): Sekisui Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005213365	A	20050811	JP 2004-21752	20040129 <--
PRIORITY APPLN. INFO.:			JP 2004-21752	20040129 <--

AB The films, comprising thermoplastic saturated norbornene resins 100, layered silicates (containing C<sub>26</sub> alkyl-bearing quaternary ammonium salts) 0.1-100, and optionally rubbers 5-40 parts, show pencil hardness  $\geq 6B$  (JIS K 5400) and transparency to parallel light  $\geq 87\%$ . Also claimed are optical films, polarizer protective films, and retardation plates from the above films. Polarizer plates consisting of polarizers and the retardation plates are useful for liquid crystal displays.

IT 12173-47-6D, Hectorite, intercalation complexes with distearyldimethylammonium salt (synthetic; thermoplastic saturated norbornene resin films with high transparency and good mech. strength for optical films, polarizer protective films, retarders, and LCD polarizers)

RN 12173-47-6 HCA

CN Hectorite ((Mg<sub>2.67</sub>Li<sub>0.33</sub>)Si<sub>4</sub>Na<sub>0.33</sub>[F<sub>0.5-1</sub>(OH)<sub>0-0.5</sub>]<sub>2</sub>O<sub>10</sub>) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 1318-93-0, Montmorillonite, uses 180616-08-4, Lucentite SPN (thermoplastic saturated norbornene resin films with high transparency and good mech. strength for optical films, polarizer protective films, retarders, and LCD polarizers)

RN 1318-93-0 HCA

CN Montmorillonite ((Al<sub>1.33-1.67</sub>Mg<sub>0.33-0.67</sub>)(Ca<sub>0-1</sub>Na<sub>0-1</sub>)<sub>0.33</sub>Si<sub>4</sub>(OH)<sub>2</sub>O<sub>10</sub>.xH<sub>2</sub>O) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 180616-08-4 HCA

CN Lucentite SPN (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 498-66-8D, Norbornene, polymers, saturated 405540-39-8, Arton G 6810 (thermoplastic saturated norbornene resin films with high transparency and good mech. strength for optical films, polarizer protective films, retarders, and LCD polarizers)

RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 405540-39-8 HCA  
 CN Arton G 6810 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

- IPCI C08J0005-18 [ICM,7]; C08K0003-34 [ICS,7]; C08K0003-00 [ICS,7,C\*]; C08L0045-00 [ICS,7]; C08L0065-00 [ICS,7]; G02B0005-30 [ICS,7]; C08L0021-00 [ICS,7]
- IPCR C08J0005-18 [I,A]; C08J0005-18 [I,C\*]; C08K0003-00 [I,C\*]; C08K0003-34 [I,A]; C08L0045-00 [I,A]; C08L0045-00 [I,C\*]; C08L0065-00 [I,A]; C08L0065-00 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30 [I,C\*]
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 73
- ST thermoplastic satd norbornene resin film transparency  
hardness; optical polarizer film LCD retarder plate;  
satd norbornene resin display optical film
- IT Quaternary ammonium compounds, uses  
(distearyl di-Me, intercalation complexes with synthetic hectorite;  
thermoplastic saturated norbornene resin films with high  
transparency and good mech. strength for optical films  
, polarizer protective films, retarders, and LCD  
polarizers)
- IT Silicates, uses  
(layered; thermoplastic saturated norbornene resin films  
with high transparency and good mech. strength for optical  
films, polarizer protective films, retarders  
, and LCD polarizers)
- IT Optical instruments  
(retarders; thermoplastic saturated norbornene resin  
films with high transparency and good mech. strength  
for optical films, polarizer protective films,  
retarders, and LCD polarizers)
- IT Mica-group minerals, uses  
(swellable; thermoplastic saturated norbornene resin films with  
high transparency and good mech. strength for optical  
films, polarizer protective films, retarders  
, and LCD polarizers)
- IT Liquid crystal displays  
Optical films  
Polarizers  
Transparent films  
(thermoplastic saturated norbornene resin films with high  
transparency and good mech. strength for optical films  
, polarizer protective films, retarders, and LCD  
polarizers)
- IT Rubber, uses  
(thermoplastic saturated norbornene resin films with high  
transparency and good mech. strength for optical films  
, polarizer protective films, retarders, and LCD  
polarizers)
- IT 12173-47-6D, Hectorite, intercalation complexes with  
distearyldimethylammonium salt  
(synthetic; thermoplastic saturated norbornene resin films with  
high transparency and good mech. strength for optical  
films, polarizer protective films, retarders  
, and LCD polarizers)
- IT 1318-93-0, Montmorillonite, uses 180616-08-4, Lucentite  
SPN  
(thermoplastic saturated norbornene resin films with high  
transparency and good mech. strength for optical films  
, polarizer protective films, retarders, and LCD  
polarizers)
- IT 498-66-8D, Norbornene, polymers, saturated 405540-39-8,

Artion G 6810

(thermoplastic saturated norbornene resin films with high transparency and good mech. strength for optical films, polarizer protective films, retarders, and LCD polarizers)

L45 ANSWER 23 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 143:50776 HCA Full-text

TITLE: Optical retardation film-forming composition, optical retardation film showing stable optical characteristics, optical retardation device, polarizer plate, and their use in liquid crystal display

INVENTOR(S): Sugiyama, Naoki; Ushino, Takuhiro; Hirono, Tatsuya; Sekiguchi, Masayuki

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 43 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

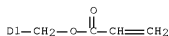
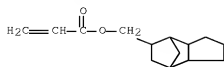
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2005156998	A	20050616	JP 2003-396069	20031126 <--
PRIORITY APPLN. INFO.:				JP 2003-396069	20031126 <--
AB	The title composition comprises (A) tabular birefringent inorg. particles showing the refractive index difference between in a surface direction and in a thickness direction, and (B) a curable binder represented by [(CH <sub>2</sub> :CR'CO-X-CqH <sub>2</sub> q)nNR <sub>4</sub> -n]+.X- or [(CH <sub>2</sub> :CR'CO-X-CqH <sub>2</sub> q)nPR <sub>4</sub> -n]+.X- {X = O, NH; R = H, Cl-20-hydrocarbyl, Cl-20-polyether; R' = H, methyl; q = 1-20; n = 1-4}.				
IT	498-66-8D, Norbornene, derivs., polymers (Artion; transparent substrate of optical retardation film showing stable optical characteristics)				
RN	498-66-8 HCA				
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)				



IT 42594-17-2, Tricyclodecane dimethanol diacrylate  
46917-07-1, Benzyl dimethyl 2-(methacryloyloxy)ethyl ammonium chloride 149316-65-4, Lucentite SWN 202149-45-9, Lucentite STN 215935-04-9, (2-Acryloyloxyethyl)(benzoylbenzyl)dimethylammonium bromide 335316-80-8, Parapet GH  
(in composition for forming optical retardation film showing stable optical characteristics)

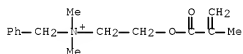
RN 42594-17-2 HCA

CN 2-Propenoic acid, 1,1'-[(octahydro-4,7-methano-1H-indene-5,7-diyl)bis(methylene)] ester (CA INDEX NAME)



RN 46917-07-1 HCA

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propen-1-yl)oxy]ethyl]-, chloride (1:1) (CA INDEX NAME)



RN 149316-65-4 HCA

CN Lithium magnesium sodium hydroxide silicate  
(Li0.33Mg2.67Na0.33(OH)2(Si2O5)2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O5Si2	2	20328-07-8
HO	2	14280-30-9
Na	0.33	7440-23-5
Mg	2.67	7439-95-4
Li	0.33	7439-93-2

RN 202149-45-9 HCA

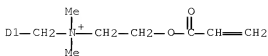
CN Lucentite STN (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 215935-04-9 HCA

CN Benzenemethanaminium, ar-benzoyl-N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, bromide (9CI) (CA INDEX NAME)





RN 335316-80-8 HCA  
 CN Parapet GH (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI G02B0005-30 [ICM,7]; C08F0002-44 [ICS,7]; G02F0001-13363 [ICS,7];  
 G02F0001-13 [ICS,7,C\*]  
 IPCR C08F0002-44 [I,A]; C08F0002-44 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30  
 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 42, 73  
 ST optical retardation film compn polarizer liq crystal  
 display  
 IT Optical films  
 (multilayer; optical retardation film-forming  
 composition, optical retardation film showing stable  
 optical characteristics, optical retardation device,  
 polarizer plate, and their use in liquid crystal display)  
 IT Liquid crystal displays  
 Polarizing films  
 (optical retardation film-forming composition, optical  
 retardation film showing stable optical  
 characteristics, optical retardation device, polarizer plate,  
 and their use in liquid crystal display)  
 IT Optical instruments  
 (retarders; optical retardation film  
 -forming composition, optical retardation film showing  
 stable optical characteristics, optical retardation device,  
 polarizer plate, and their use in liquid crystal display)  
 IT 498-66-8D, Norbornene, derivs., polymers  
 (Arton; transparent substrate of optical retardation  
 film showing stable optical characteristics)  
 IT 42594-17-2, Tricyclodecane dimethanol diacrylate  
 46917-07-1, Benzyl dimethyl 2-(methacryloyloxy)ethyl ammonium  
 chloride 149316-65-4, Lucentite SWN 202149-45-9,  
 Lucentite STN 215935-04-9,  
 (2-Acryloyloxyethyl) (benzoylbenzyl)dimethylammonium bromide  
 335316-80-8, Parapet GH  
 (in composition for forming optical retardation film  
 showing stable optical characteristics)  
 OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
 (2 CITINGS)

L45 ANSWER 24 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 142:374861 HCA Full-text  
 TITLE: Manufacture of defect-free transparent plastic films by extrusion casting  
 INVENTOR(S): Sugitani, Shoichi; Kaneko, Tadahiro  
 PATENT ASSIGNEE(S): Konica Minolta Opto Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

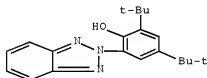
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005103815	A	20050421	JP 2003-337715	20030929 <--
PRIORITY APPLN. INFO.:			JP 2003-337715	20030929 <--

AB The transparent films are manufactured by filtration of cellulose ester or norbornene polymer solns., addition of solvents and additives, such as UV absorbers, fine particles, to parts of the filtered polymer solns., in-line addition of the resulting additive solns. to the rest of the polymer solns. in specific ratio, and extrusion casting of the resulting dopes. The cellulose ester films are useful as protective films for polarizers and the norbornene polymer films are useful as optical retardation films for liquid crystal displays. Thus, a part of filtered methylene chloride solution of cellulose triacetate was mixed with 2-(2'-hydroxy-3',5'-di-tert-butylphenyl)benzotriazole (UV absorber) and Aerosil R 972V (silica fine particle) using a pipe having inner diameter 200 mm and a flow control plate equipped with 4 holes (diameter 50 mm), added to the rest of the methylene chloride solution of cellulose triacetate, extruded thorough a die on an endless belt, dried, and peeled to give a cellulose triacetate film with uniform UV transmittance and number of surface protrusions.

IT 3846-71-7, 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole (UV absorber; manufacture of defect-free transparent plastic films by extrusion casting)

RN 3846-71-7 HCA

CN Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)- (CA INDEX NAME)



IT 7631-86-9, Aerosil R 972V, uses  
 (manufacture of defect-free transparent plastic films by  
 extrusion casting)  
 RN 7631-86-9 HCA  
 CN Silica (CA INDEX NAME)

IT 498-66-8D, Norbornene, polymers 9012-09-3  
 156929-72-5, Arton G  
 (manufacture of defect-free transparent plastic films by  
 extrusion casting)  
 RN 498-66-8 HCA  
 CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9012-09-3 HCA  
 CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7  
 CMF C2 H4 O2



RN 156929-72-5 HCA  
 CN Arton G (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 75-09-2, Methylene chloride, uses  
 (solvent; manufacture of defect-free transparent plastic  
 films by extrusion casting)  
 RN 75-09-2 HCA  
 CN Methane, dichloro- (CA INDEX NAME)



IPCI B29C0041-00 [ICM,7]; C08K0003-00 [ICS,7]; C08K0005-00 [ICS,7]; C08L0001-10  
 [ICS,7]; C08L0001-00 [ICS,7,C\*]; C08L0045-00 [ICS,7]; C08L0065-00 [ICS,7];  
 G02B0005-30 [ICS,7]; B29K0001-00 [ICS,7]; B29L0007-00 [ICS,7]  
 IPCR B29C0041-00 [I,A]; B29C0041-00 [I,C\*]; C08K0003-00 [I,A]; C08K0003-00  
 [I,C\*]; C08K0005-00 [I,A]; C08K0005-00 [I,C\*]; C08L0001-00 [I,C\*];  
 C08L0001-10 [I,A]; C08L0045-00 [I,A]; C08L0045-00 [I,C\*]; C08L0065-00  
 [I,A]; C08L0065-00 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30 [I,C\*]  
 CC 38-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 73, 74

ST transparent optical plastic film extrusion casting;  
cellulose triacetate polarizer protective film LCD; hydroxy  
butylphenyl benzotriazole UV absorber transparent film  
; silica particle transparent film liq crystal  
display; norbornene polymer optical compensation film LCD

IT Extrusion apparatus for plastics and rubbers  
Extrusion of plastics and rubbers  
Liquid crystal displays  
Optical films  
Plastic films  
Transparent films  
UV stabilizers  
(manufacture of defect-free transparent plastic films by  
extrusion casting)

IT Polarizers  
(protective films for; manufacture of defect-free  
transparent plastic films by extrusion casting)

IT Optical instruments  
(retarders; manufacture of defect-free transparent  
plastic films by extrusion casting)

IT 3846-71-7, 2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole  
(UV absorber; manufacture of defect-free transparent plastic  
films by extrusion casting)

IT 7631-86-9, Aerosil R 972V, uses  
(manufacture of defect-free transparent plastic films by  
extrusion casting)

IT 498-66-8D, Norbornene, polymers 9012-09-3  
156929-72-5, Arton G  
(manufacture of defect-free transparent plastic films by  
extrusion casting)

IT 75-09-2, Methylene chloride, uses  
(solvent; manufacture of defect-free transparent plastic  
films by extrusion casting)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(1 CITINGS)

L45 ANSWER 25 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 142:326069 HCA Full-text  
TITLE: Optical retardation laminates and  
their laminates with polarizers for liquid  
crystal displays  
INVENTOR(S): Yamanaka, Shunsuke; Arakawa, Kohei  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005077450	A	20050324	JP 2003-304242	20030828 <--
JP 4325317	B2	20090902		

PRIORITY APPLN. INFO.: JP 2003-304242 20030828 <--

AB The optical laminates, composed of (A) laminates including polymer layers  
having neg. intrinsic birefringence (e.g., styrene-maleic anhydride copolymer)  
and adjoining transparent polymer layers (e.g., alicyclic polymers), and (B)  
stretched transparent polymer films (e.g., alicyclic polymers), show variation

of front retardation  $Re \leq 10$  nm and  $0 < [(nx - nz)/(nx - ny)] < 1$  [ $Re = (nx - ny) + d$ ;  $d$  = thickness of the optical laminates (nm);  $nz$ ,  $nx$ ,  $ny$  = refractive index at 550 nm in the thickness direction and their perpendicular directions, resp.,  $nx > ny$ ]. The laminates are useful for liquid crystal displays with wide viewing angle and uniform brightness.

IT 24937-78-8D, Ethylene-vinyl acetate copolymer, modified  
 438462-87-4, Modic AP-A 543  
 (adhesive layer; optical retardation laminates and their laminates with polarizers for liquid crystal displays)

RN 24937-78-8 HCA

CN Acetic acid ethenyl ester, polymer with ethene (CA INDEX NAME)

CM 1

CRN 108-05-4

CMF C4 H6 O2



CM 2

CRN 74-85-1

CMF C2 H4



RN 438462-87-4 HCA

CN Modic AP-A 543 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 114858-94-5DP, hydrogenated  
 (optical retardation laminates and their laminates with polarizers for liquid crystal displays)

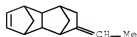
RN 114858-94-5 HCA

CN 1,4:5,8-Dimethanonaphthalene, 2-ethylidene-1,2,3,4,4a,5,8,8a-octahydro-, polymer with 3a,4,7,7a-tetrahydro-4,7-methano-1H-indene (CA INDEX NAME)

CM 1

CRN 38233-76-0

CMF C14 H18



CM 2

CRN 77-73-6  
CMF C10 H12



IT 498-66-8D, Norbornene, polymers 9011-13-6  
370857-78-6, Zeonor 1420  
(optical retardation laminates and their  
laminates with polarizers for liquid crystal displays)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 9011-13-6 HCA  
CN 2,5-Furandione, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 108-31-6  
CMF C4 H2 O3



CM 2

CRN 100-42-5  
CMF C8 H8



RN 370857-78-6 HCA  
CN Zeonor 1420 (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IPCI G02B0005-30 [I,A]; B32B0007-02 [I,A]; B32B0027-00 [I,A]  
IPCR B32B0007-02 [I,A]; B32B0007-02 [I,C\*]; B32B0027-00 [I,A]; B32B0027-00 [I,C\*]; G02B0005-30 [I,A]; G02B0005-30 [I,C\*]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 38, 73

- ST optical retardation laminate liq crystal display;  
ethylidene tetracyclododecene dicyclopentadiene polymer laminate  
; styrene maleic acid polymer laminate retardation;  
norbornene alicyclic polymer laminate film polarizer  
LCD
- IT Laminated plastic films  
Liquid crystal displays  
Optical films  
Optical instruments  
Polarizers  
(optical retardation laminates and their  
laminates with polarizers for liquid crystal displays)
- IT Optical instruments  
(retarders; optical retardation laminates  
and their laminates with polarizers for liquid crystal  
displays)
- IT 24937-78-6D, Ethylene-vinyl acetate copolymer, modified  
438462-87-4, Modic AP-A 543  
(adhesive layer; optical retardation  
laminates and their laminates with polarizers for  
liquid crystal displays)
- IT 114858-94-5DP, hydrogenated  
(optical retardation laminates and their  
laminates with polarizers for liquid crystal displays)
- IT 498-66-8D, Norbornene, polymers 9011-13-6  
370857-78-6, Zeonor 1420  
(optical retardation laminates and their  
laminates with polarizers for liquid crystal displays)

L45 ANSWER 26 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 142:306558 HCA Full-text  
TITLE: Optical retardation films,  
compositions therefor, optical retarders  
therefrom, polarizing plates therewith, and liquid  
crystal displays equipped with them  
INVENTOR(S): Sugiyama, Naoki; Sekiguchi, Masayuki  
PATENT ASSIGNEE(S): JSR Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 52 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

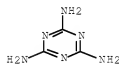
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005070534	A	20050317	JP 2003-301529	20030826 <--
JP 2009104151	A	20090514	JP 2008-310894	20081205 <--
PRIORITY APPLN. INFO.:			JP 2003-301529	A3 20030826 <--

AB The comps. comprise (A) anisotropic-shape inorg. particles showing birefringence with  $n_l > n_s$  ( $n_l$ ,  $n_s$  = refractive index in the major and the minor axis direction, resp.) and (B) (curable) binders. Optical retardation films from the comps. show  $n_p \geq n_t$  ( $n_p$ ,  $n_t$  = refractive index in the planar and the thickness direction, resp.) and optionally  $n_p - n_t \geq 0.010$  (caused by arrangement of the inorg. particles with the major axis in parallel with the planes). Optical retarders equipped with the films (on transparent substrates) and optionally transparent conductive films show long-lasting stable optical properties. In polarizer plates comprising polarizer films and protective films on both sides of them, one or both of the protective films are the retarders.

IT 498-66-8D, Norbornene, derivative, polymer  
(Arton, optical retarder substrates; optical  
retardation films containing anisotropic inorg. particles  
and binders for protective layers of LCD polarizing plates)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



IT 9003-08-1DP, Cymel 303, polymers with polyvinyl butyral  
67653-78-5P, Dipentaerythritol hexaacrylate homopolymer  
139288-54-3P, Adeka Optomer KRM 2110-ethylene oxide-propylene  
oxide copolymer 192526-57-1DP, Duranate MF-B 60X, polymers with  
polyvinyl butyral 685896-28-0P, Cymel 303-ethylene  
oxide-propylene oxide copolymer  
(binders; optical retardation films containing  
anisotropic inorg. particles and binders for protective layers  
of LCD polarizing plates)  
RN 9003-08-1 HCA  
CN 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde (CA INDEX NAME)  
CM 1  
CRN 108-78-1  
CMF C3 H6 N6



CM 2  
CRN 50-00-0  
CMF C H2 O



RN 67653-78-5 HCA  
CN 2-Propenoic acid, 1,1'-[2-[[3-[(1-oxo-2-propen-1-yl)oxy]-2,2-bis[[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)  
CM 1  
CRN 29570-58-9

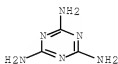




CN Formaldehyde, polymer with methyloxirane, oxirane and  
1,3,5-triazine-2,4,6-triamine (9CI) (CA INDEX NAME)

CM 1

CRN 108-78-1  
CMF C3 H6 N6



CM 2

CRN 75-56-9  
CMF C3 H6 O



CM 3

CRN 75-21-8  
CMF C2 H4 O



CM 4

CRN 50-00-0  
CMF C H2 O



IT 7440-31-5, Tin, uses  
(indium oxide doped with, transparent conductive  
films; optical retardation films containing  
anisotropic inorg. particles and binders for protective layers  
of LCD polarizing plates)  
RN 7440-31-5 HCA  
CN Tin (CA INDEX NAME)

Sn

IT 1332-29-2, Tin oxide 230975-29-8, FS 10P  
 301310-43-0, TTO-S 2 422320-96-5, TTO-S 4  
 (optical retardation films containing anisotropic  
 inorg. particles and binders for protective layers of LCD  
 polarizing plates)  
 RN 1332-29-2 HCA  
 CN Tin oxide (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 230975-29-8 HCA  
 CN FS 10P (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 301310-43-0 HCA  
 CN Tipaque TTO-S 2 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 422320-96-5 HCA  
 CN TTO-S 4 (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 1314-23-4, Zirconia, uses  
 (rutile-type titania coated with; optical retardation  
 films containing anisotropic inorg. particles and binders for  
 protective layers of LCD polarizing plates)  
 RN 1314-23-4 HCA  
 CN Zirconium oxide (ZrO<sub>2</sub>) (CA INDEX NAME)

O==Zr==O

IT 13463-67-7, Titania, uses  
 (rutile-type; optical retardation films containing  
 anisotropic inorg. particles and binders for protective layers  
 of LCD polarizing plates)  
 RN 13463-67-7 HCA  
 CN Titanium oxide (TiO<sub>2</sub>) (CA INDEX NAME)

O==Ti==O

IT 1312-43-2, Indium oxide  
 (tin-doped, transparent conductive films; optical  
 retardation films containing anisotropic inorg. particles  
 and binders for protective layers of LCD polarizing plates)  
 RN 1312-43-2 HCA  
 CN Indium oxide (In<sub>2</sub>O<sub>3</sub>) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI G02B0005-30 [ICM,7]; C08J0007-04 [ICS,7]; C08J0007-00 [ICS,7,C\*];  
 G02F0001-1335 [ICS,7]; G02F0001-13 [ICS,7,C\*]; G02F0001-1336 [ICS,7];  
 C08L0045-00 [ICS,7]  
 IPCR C08J0007-00 [I,C\*]; C08J0007-04 [I,A]; G02B0005-30 [I,A]; G02B0005-30  
 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other

Reprographic Processes)

Section cross-reference(s): 38, 73

- ST optical retardation film anisotropic inorg particle arrangement; LCD polarizer protective optical retarder titania; titania polyvinyl butyral melamine resin crosslinked retarder
- IT Polyvinyl butyrals  
(Denka Butyral 2000L, melamine resin-crosslinked, binders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Polyoxyalkylenes, preparation  
(aminoplast-, binders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Borosilicate glasses  
(crown, BK 7, optical retarder substrates; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Polyolefins  
(cyclic, optical retarder substrates; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Polysiloxanes, uses  
(di-Me, methoxy-containing, KC 89, binders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Polyoxyalkylenes, preparation  
(epoxy, binders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Liquid crystal displays  
Polarizers  
(optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Inorganic compounds  
(optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Aminoplasts  
(optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Polycarbonates, uses  
(optical retarder substrates; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Aminoplasts  
Epoxy resins, preparation  
(polyoxyalkylene-, binders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT Optical instruments  
(retarders; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT 498-66-8D, Norbornene, derivative, polymer  
(Aron, optical retarder substrates; optical retardation films containing anisotropic inorg. particles and binders for protective layers of LCD polarizing plates)
- IT 9903-03-IDP, Cymel 303, polymers with polyvinyl butyrals

- 6753-78-5F, Dipentaerythritol hexaacrylate homopolymer  
 139288-54-3P, Adeka Optomer KRM 2110-ethylene oxide-propylene  
 oxide copolymer 192526-57-1DP, Duranate MF-B 60X, polymers with  
 polyvinyl butyrals 685896-28-0P, Cymel 303-ethylene  
 oxide-propylene oxide copolymer  
 (binders; optical retardation films containing  
 anisotropic inorg. particles and binders for protective layers  
 of LCD polarizing plates)
- IT 7440-31-5, Tin, uses  
 (indium oxide doped with, transparent conductive  
 films; optical retardation films containing  
 anisotropic inorg. particles and binders for protective layers  
 of LCD polarizing plates)
- IT 1332-29-2, Tin oxide 230975-29-8, FS 10P  
 301310-43-0, TIO-S 2 422320-96-5, TIO-S 4  
 (optical retardation films containing anisotropic  
 inorg. particles and binders for protective layers of LCD  
 polarizing plates)
- IT 1314-23-4, Zirconia, uses  
 (rutile-type titania coated with; optical retardation  
 films containing anisotropic inorg. particles and binders for  
 protective layers of LCD polarizing plates)
- IT 13463-67-7, Titania, uses  
 (rutile-type; optical retardation films containing  
 anisotropic inorg. particles and binders for protective layers  
 of LCD polarizing plates)
- IT 1312-43-2, Indium oxide  
 (tin-doped, transparent conductive films; optical  
 retardation films containing anisotropic inorg. particles  
 and binders for protective layers of LCD polarizing plates)

L45 ANSWER 27 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 142:186965 HCA Full-text  
 TITLE: Optical retardation films with  
 good transparency, heat resistance, and  
 uniform retardation and manufacture thereof

INVENTOR(S): Hiroyuki Tomoki  
 PATENT ASSIGNEE(S): Kaneka Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2005037616	A	20050210	JP 2003-199398	20030718 <--
PRIORITY APPLN. INFO.:				JP 2003-199398	20030718 <--
AB	Cyclic olefin polymers modified with acetate-containing compds. (e.g., vinyl acetate, allyl acetate) are saponified (after film formation by casting, employing nonarom. halohydrocarbon solvents) and drawn to give the retardation films useful for LCD.				
IT	108-05-4DP, Vinyl acetate, reaction products with Zeonor 1600R, saponified 498-66-8DP, Norbornene, polymers, allyl acetate-grafted, saponified 591-87-7DP, Allyl acetate, reaction products with Zeonor 1600R, saponified 291522-63-9DP, Zeonor 1600R, reaction products with allyl acetate or vinyl acetate, saponified (manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and				

saponified cyclic olefin polymers)

RN 108-05-4 HCA

CN Acetic acid ethenyl ester (CA INDEX NAME)



RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 591-87-7 HCA

CN Acetic acid, 2-propen-1-yl ester (CA INDEX NAME)



RN 291522-63-9 HCA

CN Zeonor 1600R (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 75-09-2, Methylene chloride, uses  
(solvents; manufacture of heat-resistant transparent optical  
retardation films by casting of acetate-modified and  
saponified cyclic olefin polymers)

RN 75-09-2 HCA

CN Methane, dichloro- (CA INDEX NAME)



IPCI G02B0005-30 [ICM,7]; B29C0055-02 [ICS,7]; C08F0008-12 [ICS,7]; C08F0008-00 [ICS,7,C\*]; C08F0277-00 [ICS,7]; C08F0283-14 [ICS,7]; C08F0283-00 [ICS,7,C\*]; G02F0001-13363 [ICS,7]; G02F0001-13 [ICS,7,C\*]; B29K0045-00 [ICS,7]

IPCR B29C0055-02 [I,A]; B29C0055-02 [I,C\*]; C08F0008-00 [I,C\*]; C08F0008-12 [I,A]; C08F0277-00 [I,A]; C08F0277-00 [I,C\*]; C08F0283-00 [I,C\*]; C08F0283-14 [I,A]; G02B0005-30 [I,A]; G02B0005-30 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-13363 [I,A]

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 73

ST optical retarder film transparency heat  
resistance; LCD retarder modified cyclic olefin polymer casting;  
allyl acetate grafted norbornene polymer saponid retarder

IT Hydrocarbons, uses

(halo, nonarom., solvents; manufacture of heat-resistant transparent

- optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)
- IT Casting of polymeric materials  
Liquid crystal displays  
(manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)
- IT Cycloalkenes  
(polymers, acetate-modified, saponified; manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)
- IT Optical instruments  
(retarders; manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)
- IT 108-05-4DP, Vinyl acetate, reaction products with Zeonor 1600R, saponified 498-66-8DP, Norbornene, polymers, allyl acetate-grafted, saponified 591-87-7DP, Allyl acetate, reaction products with Zeonor 1600R, saponified 291522-63-9DP, Zeonor 1600R, reaction products with allyl acetate or vinyl acetate, saponified  
(manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)
- IT 75-09-2, Methylene chloride, uses  
(solvents; manufacture of heat-resistant transparent optical retardation films by casting of acetate-modified and saponified cyclic olefin polymers)

L45 ANSWER 28 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 141:418072 HCA Full-text  
TITLE: Polarizing plate, manufacture of the plate, optical film, and liquid crystal display device  
INVENTOR(S): Nishida, Akihiro; Saiki, Yuji; Yoda, Kenji; Yano, Shuji  
PATENT ASSIGNEE(S): Nitto Denko Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004325468	A	20041118	JP 2003-115491	20030421 <--
PRIORITY APPLN. INFO.:			JP 2003-115491	20030421 <--

AB The plate is made of a polarizing plate and transparent protective films on the both sides of the plate. One side of the polarizing plate is laminated with a transparent film containing a thermoplastic resin having substituted and/or nonsubstituted imide group on the side chains and another thermoplastic resin having nitrile group and substituted and/or nonsubstituted Ph group on the side chains. The other side of the polarizer is laminated with a transparent film having moisture permeability  $\geq 200$  g/m<sup>2</sup> after 24 h at 40° and relative humidity 92%. The plate is manufactured by the process involving applying of the above 2 protective films by using an adhesive. The optical film is made of the polarizing plate and  $\geq 1$  other optical films, preferably an optical retarder film. An image-displaying device, preferably an in-plane switching (IPS)-mode liquid crystal display device uses the optical film. The polarizing plate can be manufactured without requiring severe drying condition and allows easy designing of optical retardation.

IT 9004-48-2  
(Tenite Propionate, protective layer; polarizing plate having transparent protective layers dryable in mild condition)  
RN 9004-48-2 HCA  
CN Cellulose, propanoate (CA INDEX NAME)

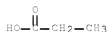
CM 1

CRN 9004-34-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 79-09-4  
CMF C3 H6 O2



IT 9002-89-5, Poly(vinyl alcohol) 161740-99-4,  
N-Methylglutarimide-methyl methacrylate copolymer  
(polarizing plate having transparent protective layers dryable in mild condition)  
RN 9002-89-5 HCA  
CN Ethenol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5  
CMF C2 H4 O



RN 161740-99-4 HCA  
CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with 1-methyl-2,6-piperidinedione (9CI) (CA INDEX NAME)

CM 1

CRN 25077-25-2  
CMF C6 H9 N O2





CM 2

CRN 80-62-6

CMF C5 H8 O2



IT 9003-54-7, Acrylonitrile-styrene copolymer 9012-09-3,  
Triacetylcellulose 141550-47-2, Isobutene-N-methylmaleimide  
copolymer

(protective layer; polarizing plate having  
transparent protective layers dryable in mild  
condition)

RN 9003-54-7 HCA

CN 2-Propenenitrile, polymer with ethenylbenzene (CA INDEX NAME)

CM 1

CRN 107-13-1

CMF C3 H3 N



CM 2

CRN 100-42-5

CMF C8 H8



RN 9012-09-3 HCA

CN Cellulose, triacetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2



RN 141550-47-2 HCA  
 CN 1H-Pyrrole-2,5-dione, 1-methyl-, polymer with 2-methyl-1-propene (CA  
 INDEX NAME)  
 CM 1  
 CRN 930-88-1  
 CMF C5 H5 N O2



CM 2  
 CRN 115-11-7  
 CMF C4 H8



IPCI G02B0005-30 [ICM,7]; G02F0001-1335 [ICS,7]; G02F0001-13363 [ICS,7];  
 G02F0001-13 [ICS,7,C\*]  
 IPCR G02B0005-30 [I,A]; G02B0005-30 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-1335  
 [I,A]; G02F0001-13363 [I,A]  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38, 73  
 ST polarizing plate transparent protective film; imide  
 substituted thermoplastic resin blend; nitrile phenyl substituted  
 thermoplastic resin blend; moisture permeable protective film  
 polarizing plate; mild drying condition optical film polarizer;  
 in plane switching liq crystal display  
 IT Liquid crystal displays  
 (in-plane switching; polarizing plate having transparent  
 protective layers dryable in mild condition for)  
 IT Laminated plastic films  
 Polarizers  
 Transparent films  
 (polarizing plate having transparent protective  
 layers dryable in mild condition)  
 IT Optical films  
 (polarizing plate having transparent protective  
 layers dryable in mild condition for)  
 IT Optical instruments

(retarders, films; polarizing plate having transparent protective layers dryable in mild condition for)

IT 9004-48-2

(Tenite Propionate, protective layer; polarizing plate having transparent protective layers dryable in mild condition)

IT 9002-89-5, Poly(vinyl alcohol) 161740-99-4,

N-Methylglutarimide-methyl methacrylate copolymer (polarizing plate having transparent protective layers dryable in mild condition)

IT 9003-54-7, Acrylonitrile-styrene copolymer 9012-09-3, Triacetylcellulose 141550-47-2, Isobutene-N-methylmaleimide copolymer

(protective layer; polarizing plate having transparent protective layers dryable in mild condition)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L45 ANSWER 29 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 141:24700 HCA Full-text

TITLE: Manufacture of optical films with low retardation and reduced flares by extrusion molding

INVENTOR(S): Okada, Yasumasa; Urui, Yasuto

PATENT ASSIGNEE(S): Sekisui Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

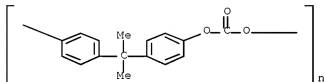
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004160819	A	20040610	JP 2002-328814	20021112 <--
PRIORITY APPLN. INFO.:			JP 2002-328814	20021112 <--
AB	The films, useful for polarizer protection, are manufactured by (A) cooling melt-extruded thermoplastic resin films on metal rolls at temps. between [Tg (glass-transition temperature) + 20°] and (Tg - 50°) while elec. charging film edges (at which the films touch the rolls) partially for edge pinning and (B) drawing the films upward at tension ≥98 N/m by rubber rolls under controlled torque for releasing them from the cooling rolls, wherein the film temperature just before touching the rubber rolls = RT (room temperature) to (RT + 50°) and the angle of the films to the rubber rolls = 90-240°. Thus, a film with retardation 6.2 nm, haze 0.1%, and flare 1.0 mm was manufactured from Panlite K 1300Y (polycarbonate).			
IT	498-66-8D, Norbornene, derivs., polymers 24936-68-3, Panlite K 1300Y 25135-51-7, Udel P 1700 700379-19-7, Arton D 4532 (manufacture of optical films with low retardation and reduced flares by extrusion molding)			
RN	498-66-8 HCA			
CN	Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)			



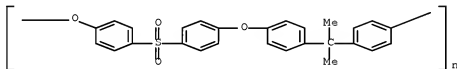
RN 24936-68-3 HCA

CN Poly[oxy-carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



RN 25135-51-7 HCA

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (CA INDEX NAME)



RN 700379-19-7 HCA

CN Arton D 4532 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI B29C0047-88 [ICM,7]; B29L0007-00 [ICS,7]; B29L0011-00 [ICS,7]

IPCR B29C0047-88 [I,A]; B29C0047-88 [I,C\*]

CC 38-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

ST optical film extrusion molding low retardation;  
 polarizer protection polycarbonate film cooling roll; rubber  
 roll drawing film flare prevention

IT Extrusion of plastics and rubbers  
 Optical films  
 Plastic films  
 Rolls

Transparent films

(manufacture of optical films with low retardation and  
 reduced flares by extrusion molding)

IT Polycarbonates, uses

(manufacture of optical films with low retardation and  
 reduced flares by extrusion molding)

IT Polysulfones, uses

(polyether-; manufacture of optical films with low  
 retardation and reduced flares by extrusion molding)

IT Polyethers, uses

(polysulfone-; manufacture of optical films with low retardation and reduced flares by extrusion molding)

IT Plastics, uses  
(thermoplastics; manufacture of optical films with low retardation and reduced flares by extrusion molding)

IT 498-66-8D, Norbornene, derivs., polymers 24936-68-3, Panlite K 1300Y 25135-51-7, Udel P 1700 700379-19-7, Arton D 4532  
(manufacture of optical films with low retardation and reduced flares by extrusion molding)

L45 ANSWER 30 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 139:330066 HCA Full-text

TITLE: Norbornene polymer optical films with excellent heat and water resistance, their manufacture, and polarizers using them

INVENTOR(S): Sakakura, Yasuhiro; Shibata, Hiroshi; Sekiguchi, Masayuki

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003292639	A	20031015	JP 2002-94706	20020329 <--
JP 3912159	B2	20070509		

PRIORITY APPLN. INFO.: JP 2002-94706 20020329 <--

AB The films contain thermoplastic norbornene polymers (A) showing neg. birefringence at 400-800 nm and those (B) showing pos. birefringence at 400-800 nm and satisfy that  $[\Delta n_1(\lambda) + \Delta n_2(\lambda)] > 0$  and  $[\Delta n_2(\lambda) - \Delta n_2(800)] < [\Delta n_1(800) - \Delta n_1(\lambda)]$ , wherein  $\Delta n_1, 2(\lambda)$  = the difference in refractive index between the machine and transverse directions at wavelength  $\lambda$  of uniaxially oriented film of A and B, resp. The films with pos. wavelength dependency (where the absolute value of retardation increases with an increase of wavelength), manufactured by cast molding, are useful for polarizer protection.

IT 221224-48-2, Opstar JN 7212  
(antireflective layer; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

RN 221224-48-2 HCA

CN Opstar JN 7212 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 498-66-8D, Norbornene, alc. derivs. 2243-83-6, 2-Naphthoyl chloride 14002-51-8, 4-Phenylbenzoyl chloride  
(for norbornene monomer preparation; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

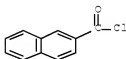
RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



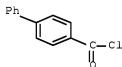
RN 2243-83-6 HCA

CN 2-Naphthalenecarbonyl chloride (CA INDEX NAME)



RN 14002-51-8 HCA

CN [1,1'-Biphenyl]-4-carbonyl chloride (CA INDEX NAME)



IT 75-09-2, Methylene chloride, uses

(good solvent; manufacture of norbornene polymer optical films  
with good retardation properties and heat and water  
resistance for polarizer protection)

RN 75-09-2 HCA

CN Methane, dichloro- (CA INDEX NAME)



IT 123303-71-9DP, 8-Methyl-8-methoxycarbonyltetracyclo[4.4.0.12,5.17,10]-3-dodecene homopolymer, hydrogenated 612531-08-5DP, hydrogenated 612531-11-0DP, hydrogenated

(manufacture of norbornene polymer optical films with good  
retardation properties and heat and water resistance for  
polarizer protection)

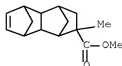
RN 123303-71-9 HCA

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, 1,2,3,4,4a,5,8,8a-octahydro-2-methyl-, methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 58732-15-3

CMF C15 H20 O2

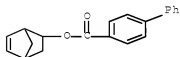


RN 612531-08-5 HCA  
 CN [1,1'-Biphenyl]-4-carboxylic acid, bicyclo[2.2.1]hept-5-en-2-yl ester,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 515136-90-0

CMF C20 H18 O2

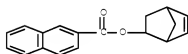


RN 612531-11-0 HCA  
 CN 2-Naphthalenecarboxylic acid, bicyclo[2.2.1]hept-5-en-2-yl ester,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

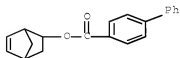
CRN 515136-91-1

CMF C18 H16 O2

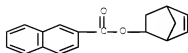


IT 515136-90-0P 515136-91-1P  
 (monomer; manufacture of norbornene polymer optical films with  
 good retardation properties and heat and water resistance for  
 polarizer protection)

RN 515136-90-0 HCA  
 CN [1,1'-Biphenyl]-4-carboxylic acid, bicyclo[2.2.1]hept-5-en-2-yl ester (CA  
 INDEX NAME)



RN 515136-91-1 HCA  
 CN 2-Naphthalenecarboxylic acid, bicyclo[2.2.1]hept-5-en-2-yl ester (CA INDEX NAME)



IT 9002-89-5, Poly(vinyl alcohol)  
 (polarizing film; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 RN 9002-89-5 HCA  
 CN Ethanol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5  
 CMF C2 H4 O



IT 67-56-1, Methanol, uses  
 (poor solvent; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 RN 67-56-1 HCA  
 CN Methanol (CA INDEX NAME)



IT 108-88-3, Toluene, uses  
 (solvent; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 RN 108-88-3 HCA  
 CN Benzene, methyl- (CA INDEX NAME)



IT 50926-11-9, Indium tin oxide  
 (transparent conductive layer; manufacture of norbornene polymer optical films with good retardation)



properties and heat and water resistance for polarizer protection)  
 RN 50926-11-9 HCA  
 CN Indium tin oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
In	x	7440-74-6
Sn	x	7440-31-5

IPCI C08J0005-18 [I,A]; B29C0041-12 [I,A]; C08G0061-08 [I,A]; C08G0061-00 [I,C\*]; C08J0007-06 [I,A]; C08J0007-00 [I,C\*]; C08L0065-00 [I,A]; G02B0001-04 [I,A]; G02B0005-02 [I,A]; G02B0005-30 [I,A]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]; G02F0001-13 [I,C\*]  
 IPCR G02B0005-02 [I,C\*]; G02B0005-02 [I,A]; B29C0041-12 [I,C\*]; B29C0041-12 [I,A]; B29K0045-00 [N,A]; B29L0007-00 [N,A]; C08G0061-00 [I,C\*]; C08G0061-08 [I,A]; C08J0005-18 [I,C\*]; C08J0005-18 [I,A]; C08J0007-00 [I,C\*]; C08J0007-06 [I,A]; C08L0065-00 [I,C\*]; C08L0065-00 [I,A]; G02B0001-04 [I,C\*]; G02B0001-04 [I,A]; G02B0005-30 [I,C\*]; G02B0005-30 [I,A]; G02F0001-13 [I,C\*]; G02F0001-1335 [I,A]; G02F0001-13363 [I,A]  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 38  
 ST norbornene ring opening polymer film polarizer; retarder  
 film refractive index biphenylcarbonyloxybicycloheptene polymer;  
 polynorbornene blend cast film heat resistance  
 IT Films  
 (elec. conductive; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Electric conductors  
 (films; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Polyalkenamers  
 (hydrogenated; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Casting of polymeric materials  
 Optical films  
 Plastic films  
 Polarizing films  
 Transparent films  
 (manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Polymer blends  
 (manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Antireflective films  
 (multilayer; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT Optical instruments  
 (retarders; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)  
 IT 221224-48-2, Opstar JN 7212

(antireflective layer; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 498-66-8D, Norbornene, alc. derivs. 2243-83-6, 2-Naphthoyl chloride 14002-51-8, 4-Phenylbenzoyl chloride (for norbornene monomer preparation; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 75-09-2, Methylene chloride, uses (good solvent; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 123303-71-9DP, 8-Methyl-8-methoxycarbonyltetracyclo[4.4.0.12,5.17,10]-3-dodecene homopolymer, hydrogenated 612531-08-5DP, hydrogenated 612531-11-0DP, hydrogenated (manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 515136-90-0P 515136-91-1P (monomer; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 9002-89-5, Poly(vinyl alcohol) (polarizing film; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 67-56-1, Methanol, uses (poor solvent; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 108-88-3, Toluene, uses (solvent; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

IT 50926-11-9, Indium tin oxide (transparent conductive layer; manufacture of norbornene polymer optical films with good retardation properties and heat and water resistance for polarizer protection)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L45 ANSWER 31 OF 34 HCA COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 137:147851 HCA Full-text

TITLE: Reflection-type liquid crystal display devices giving clear black images and their manufacture

INVENTOR(S): Watanabe, Takahiko; Inoue, Daisuke

PATENT ASSIGNEE(S): NEC Corp., Japan; NEC LCD Technologies, Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 200229070	A	20020814	JP 2001-22485	20010130 <--
JP 3538149	B2	20040614		

US 20020135716 A1 20020926 US 2002-58092 20020129 <--  
US 6697134 B2 20040224  
TW 584765 B 20040421 TW 2002-101455 20020129 <--  
PRIORITY APPLN. INFO.: JP 2001-22485 A 20010130 <--  
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
AB The device is equipped with (A) a polarizing film and (B) a laminated quarter-wave plate consisting of a quarter-wave retardation film and a half-wave retardation film made of norbornene polymers on the face side substrate, opposite to the liquid crystal layer. The dielec. anisotropy of the liquid crystal is set  $\geq 6$  and the optic axial angles of the retardation films and the angle of absorption axis of the polarizing film are specified. Manufacture of the device including orientation of liquid crystals in certain condition is also claimed.  
IT 498-66-8D, Norbornene, polymers 150872-17-6, Arton  
(quarter-wave plate; manufacture of reflection liquid crystal displays with bilayered quarter-wave plates for clear black images)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)

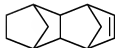


RN 150872-17-6 HCA  
CN Arton (CA INDEX NAME)  
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
IPCI G02F0001-139 [ICM,7]; G02F0001-1335 [ICS,7]; G02F0001-1336 [ICS,7];  
G02F0001-1343 [ICS,7]; G02F0001-1368 [ICS,7]; G02F0001-13 [ICS,7,C\*]  
IPCR G02F0001-137 [I,A]; G02F0001-13 [I,C\*]; G02F0001-1335 [I,A];  
G02F0001-13363 [I,A]; G02F0001-1343 [I,A]; G02F0001-136 [I,A];  
G02F0001-1368 [I,A]; G02F0001-139 [I,A]  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
ST reflection liq crystal display retardation film;  
quarter wave plate retardation film LCD; black image  
clear reflection liq crystal display  
IT Liquid crystal displays  
(reflection; manufacture of reflection liquid crystal displays with bilayered  
quarter-wave plates for clear black images)  
IT Optical instruments  
(retarders; manufacture of reflection liquid crystal displays with bilayered quarter-wave plates for clear black images)  
IT 498-66-8D, Norbornene, polymers 150872-17-6, Arton  
(quarter-wave plate; manufacture of reflection liquid crystal displays with bilayered quarter-wave plates for clear black images)  
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(3 CITINGS)

L45 ANSWER 32 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 135:167770 HCA [Full-text](#)  
TITLE: Cycloolefin polymer-based optical films for polarizer protection films  
INVENTOR(S): Kawabata, Yusuke; Awaji, Hiroshi; Shimokawa, Minoru  
PATENT ASSIGNEE(S): Kanegafuchi Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 2001221915	A	20010817	JP 2000-29499	20000207 <--
PRIORITY APPLN. INFO.:				JP 2000-29499	20000207 <--
AB	The title films, prepared by stretching noncryst. cycloolefin polymer films (e.g., of Apel 6013 or Zeonora 1420R, casted on Tetonon HS 350 film), with 30- $\mu$ m thickness and retardation value <20 nm, have good transparency and tensile strength.				
IT	26007-55-6 (Apel 6013; cycloolefin polymer-based optical films for polarizer protection films)				
RN	26007-55-6 HCA				
CN	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,4a,5,8,8a-octahydro-, polymer with ethene (CA INDEX NAME)				
CM	1				
CRN	21635-90-5				
CMF	C12 H16				



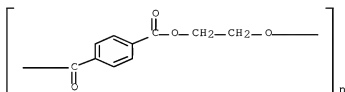
CM 2  
CRN 74-85-1  
CMF C2 H4

H<sub>2</sub>C=CH<sub>2</sub>

IT 498-66-8D, Norbornene, polymers 25038-59-9, Tetonon HS 350, uses 294864-12-3, Zeonor 1420R (cycloolefin polymer-based optical films for polarizer protection films)  
RN 498-66-8 HCA  
CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 25038-59-9 HCA  
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (CA INDEX NAME)



RN 294864-12-3 HCA  
 CN Zeonor 1420R (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IPCI G02B0005-30 [ICM,7]; C08J0005-18 [ICS,7]  
 IPCR C08J0005-18 [I,C\*]; C08J0005-18 [I,A]; G02B0005-30 [I,C\*]; G02B0005-30 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73  
 ST cycloolefin polymer optical film polarizer protection  
 IT Optical films  
 Polarizing films  
 Tensile strength  
 Transparent films  
 (cycloolefin polymer-based optical films for polarizer protection films)  
 IT Laminated plastics, uses  
 (cycloolefin polymer-based optical films for polarizer protection films)  
 IT Polyesters, uses  
 (cycloolefin polymer-based optical films for polarizer protection films)  
 IT 26007-55-6  
 (Apel 6013; cycloolefin polymer-based optical films for polarizer protection films)  
 IT 498-66-8D, Norbornene, polymers 25038-59-9, Tetoron HS 350, uses 294864-12-3, Zeonor 1420R  
 (cycloolefin polymer-based optical films for polarizer protection films)

L45 ANSWER 33 OF 34 HCA COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 133:267958 HCA Full-text  
 TITLE: Thermoplastic polymer sheets, their manufacture, and transparent electrode sheets using them  
 INVENTOR(S): Arai, Susumu; Tanaka, Junji  
 PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.

KIND DATE

APPLICATION NO.

DATE

JP 2000273204	A	20001003	JP 1999-75137	19990319 <--
JP 3533101	B2	20040531		

PRIORITY APPLN. INFO.: JP 1999-75137 19990319 <--

AB Thermoplastic polymer sheets having Tg  $\geq 150^\circ$ , thickness 150-1000  $\mu\text{m}$ , thickness tolerance (Rmax)  $\leq 20 \mu\text{m}$ , surface roughness  $\leq 0.1 \mu\text{m}$ , and retardation  $\leq 20 \text{ nm}$ , useful as substrates for transparent electrode sheets for liquid crystal displays, etc., are manufactured by extruding the thermoplastic polymers through a T-die or a coat-hanger die into sheets, moving the sheets while keeping the temperature difference between the surface and back sides of the sheets within  $15^\circ$ , and cooling the sheets. Thus, a 400- $\mu\text{m}$  polyether-polysulfone (Victrex PES 4100G; Tg  $226^\circ$ ) sheet prepared in the process showed Rmax 15  $\mu\text{m}$ , retardation 15 nm, and surface roughness 0.06  $\mu\text{m}$ . Liquid crystal cells having transparent electrode films using the sheet showed high contrast and precision.

IT 498-66-8D, Norbornene, polymers 25667-42-9, Victrex PES 4100G 295785-91-0, Zeonor 1600 (thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

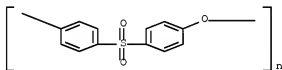
RN 498-66-8 HCA

CN Bicyclo[2.2.1]hept-2-ene (CA INDEX NAME)



RN 25667-42-9 HCA

CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (CA INDEX NAME)



RN 295785-91-0 HCA

CN Zeonor 1600 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI C08J0005-18 [ICM,7]; B29C0047-00 [ICS,7]; B29C0047-92 [ICS,7]; G09F0009-30 [ICS,7]; B29L0007-00 [ICS,7]

IPCR G09F0009-30 [I,C\*]; G09F0009-30 [I,A]; B29C0047-00 [I,C\*]; B29C0047-00 [I,A]; B29C0047-92 [I,C\*]; B29C0047-92 [I,A]; B29L0007-00 [N,A]; C08J0005-18 [I,C\*]; C08J0005-18 [I,A]

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 74, 76

ST thermoplastic polymer sheet extrusion uniform thickness;  
polyether polysulfone sheet transparent electrode LCD;  
liq crystal display polyether polysulfone sheet

IT Films  
(elec. conductive, transparent; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Transparent films  
(elec. conductive; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Electric conductors  
Electric conductors  
(films, transparent; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Polysulfones, uses  
Polysulfones, uses  
(polyether-; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Polyethers, uses  
Polyethers, uses  
(polysulfone-; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Plastic films  
(thermo-; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Extrusion of plastics and rubbers  
Liquid crystal displays  
(thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT Electrodes  
(transparent; thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

IT 498-66-8D, Norbornene, polymers 25667-42-9, Victrex PES 4100G 295785-91-0, Zeonor 1600  
(thermoplastic polymer sheets with uniform thickness for transparent electrodes for liquid crystal displays)

L45 ANSWER 34 OF 34 HCA COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 93:123725 HCA Full-text  
ORIGINAL REFERENCE NO.: 93:19585a,19588a  
TITLE: Improvements in liquid crystal displays  
INVENTOR(S): Fergason, James L.  
PATENT ASSIGNEE(S): American Liquid Xtal Chemical Corp., USA  
SOURCE: Brit. UK Pat. Appl., 6 pp.  
CODEN: BAXXDU  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
GB 2028527	A	19800305	GB 1979-19824	19790607 <--
JP 04001888	B	19920114	JP 1979-71335	19790608 <--
US 32521	E	19871013	US 1985-710846	19850312 <--
US 32521	B1	19900918	US 1989-90001777	19890602 <--
JP 04218029	A	19920807	JP 1991-84009	19910416 <--
PRIORITY APPLN. INFO.:			US 1978-913618	A 19780608 <--
			US 1980-121071	A2 19800213 <--
			US 1981-235006	A5 19810217 <--
			US 1985-710846	A 19850312 <--

AB A field-effect nematic liquid crystal light shutter display with an improved angle of view is described. The display incorporates at least 2 plastic- film retardation plates disposed in front of the liquid-crystal cell to compensate for the nonuniform off-axis performance of the device resulting from the birefringent nature of the liquid crystal. When the transparent plates of the display have conductive surfaces which have been rubbed at right angles to each other to effect a twisted-nematic structure, 2 retardation plates are used. The net retardation of each plate is less than or equal to the net retardation of the liquid crystal material itself. When the plates have been rubbed parallel to each other, at least 3 retardation plates are used. The retardation plates can be incorporated into the front polarizer used on the display.

IT 9002-89-5 9003-07-0 9004-35-7  
9015-12-7

(retardation plates of oriented, in liquid crystal  
light-shutter display, for improved viewing angle)

RN 9002-89-5 HCA

CN Ethanol, homopolymer (CA INDEX NAME)

CM 1

CRN 557-75-5

CMF C2 H4 O



RN 9003-07-0 HCA

CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



RN 9004-35-7 HCA

CN Cellulose, acetate (CA INDEX NAME)

CM 1

CRN 9004-34-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 64-19-7

CMF C2 H4 O2





RN 9015-12-7 HCA  
 CN Cellulose, butanoate (CA INDEX NAME)

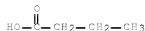
CM 1

CRN 9004-34-6  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 107-92-6  
 CMF C4 H8 O2



IPCI C09F0009-30 [ICM]  
 IPCR G02F0001-1335 [I,A]; G09F0009-00 [I,C\*]; G02F0001-13 [I,C\*]; G02F0001-13 [I,A]; G02F0001-13363 [I,A]; G02F0001-137 [I,A]; G02F0001-139 [I,A]; G09F0009-00 [I,A]  
 CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic Processes)  
 ST liq crystal light shutter display; plastic retardation plate light shutter; field effect liq crystal shutter  
 IT Polycarbonates  
 Polyesters, uses and miscellaneous  
 (retardation plates of oriented, in liquid crystal light-shutter display, for improved viewing angle)  
 IT Vinyl acetal polymers  
 (butyrals, retardation plates of oriented, in liquid crystal light-shutter display, for improved viewing angle)  
 IT 9002-89-5 9003-07-0 9004-35-7  
 9015-12-7  
 (retardation plates of oriented, in liquid crystal light-shutter display, for improved viewing angle)  
 OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)